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LET HACKERS IN
NEUTRALIZE ATTACKERS
EXPERTS SAY TRAPS MIGHT BE BETTER THAN WALLS

CINEMA
OSCAR 2015 NOMINATIONS
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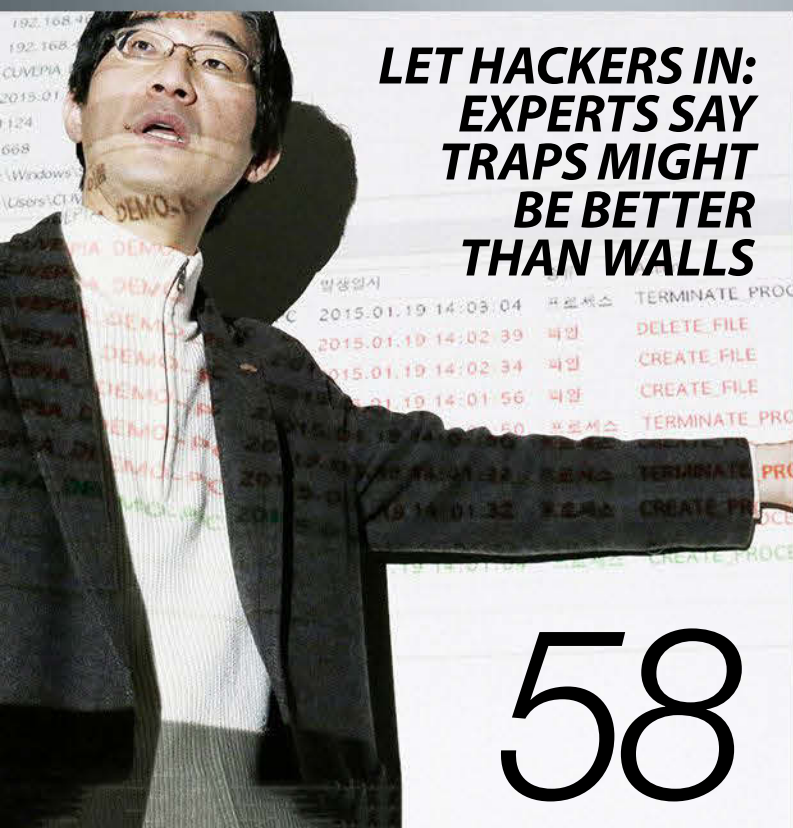
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SENATORS CALL FOR INVESTIGATION INTO VERIZON 'SUPERCOOKIES'

Democratic senators on Friday called on federal regulators to investigate Verizon Wireless, the country's biggest mobile provider, for secretly inserting unique tracking codes into the Web traffic of its some 100 million customers.

Data privacy experts have accused Verizon of violating consumers' privacy by using "supercookies," an identifying string of letters and numbers attached to each site visited on a person's mobile device.

"This whole supercookie business raises the specter of corporations being able to peek into the habits of Americans without their knowledge or consent," said Sen. Bill Nelson of Florida, the top Democrat on the Senate Commerce Committee, in a statement.

Verizon Wireless spokeswoman Debra Lewis said the company "takes our customers' privacy seriously" and that it planned to respond to Nelson's letter to the Federal Communications Commission and Federal Trade Commission. The company had
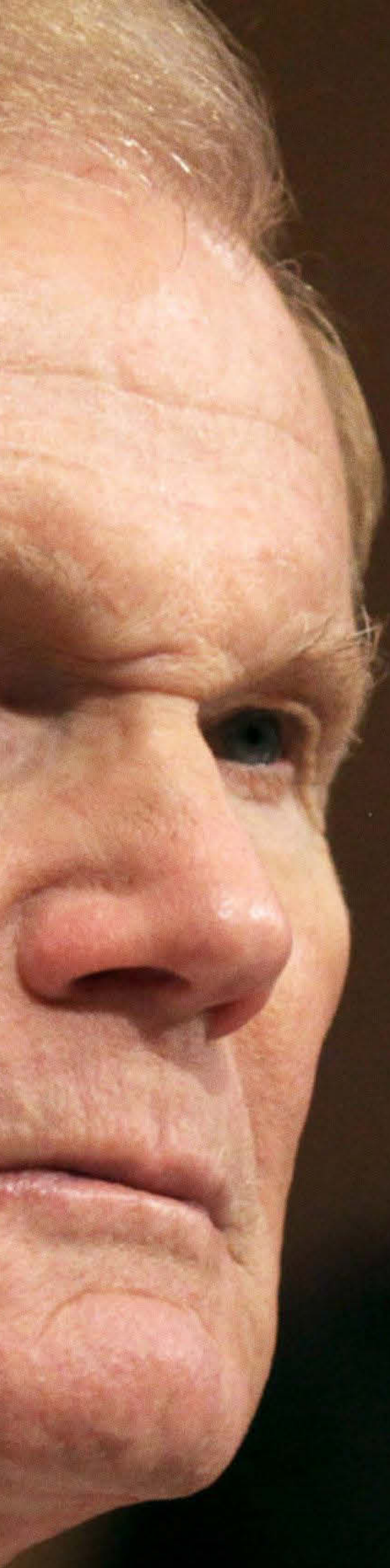
Image: Eric Thayer

announced last week it would give customers the chance to opt out of the tracking program.

The FCC and FTC did not respond to questions on whether they would conduct a review. The FCC regulates the telecommunications industry, while the FTC investigates consumer complaints based on unfair or deceptive business practices. The agencies typically do not acknowledge investigations until they are complete and only if wrongdoing is found.

"The commission takes violations of consumer privacy extremely seriously," said FCC spokesman Neil Grace in an emailed statement.

Most people are familiar with online cookies-little bits of code attached to your Web browser after visiting a site. But popular Web browsers give the option of blocking these cookies or deleting them from your computer.

As more people rely on wireless devices to go online, the industry found a new way to track people. At Verizon, each retail customer - business and government users were exempted - was assigned a unique code, or identifying header, that was inserted into their mobile applications and browsers. Critics called these supercookies because consumers couldn't delete them and no one knew they were there. And while these trackers didn't contain personal information, such as a name or phone number, they could be easily used to identify a person by monitoring their Web habits and cross-referencing it with information that a person volunteers online.

A civil liberties group, the Electronic Frontier Foundation, compared supercookies to creating a "license plate for your brain" because everything a person thinks about and searches for online would become linked to an identifying header.

Phone companies are required by law to give customers the opportunity to opt out of data collection for marketing purposes and have five

Image: Lauren Victoria Burke

business days to notify the FCC if that process fails. Last September, Verizon Communications agreed to pay $7.4 million to settle allegations after it failed to notify some 2 million customers of its privacy policies.

In the letters to regulators, Nelson said he wants to know whether Verizon violated any laws and suggested new privacy legislation might be needed. Democratic Sens. Richard Blumenthal of Connecticut and Ed Markey of Massachusetts also signed the letters.

AT&T Mobility, which had experimented with the idea, announced last November that it's no longer attaching the hidden codes.

Consumers' interest in privacy and their digital anonymity has intensified in recent years, following revelations by former National Security Agency analyst Edward Snowden. Top secret NSA documents he leaked to journalists revealed the NSA was collecting the phone records and digital communications of millions of citizens not suspected of a crime, prompting congressional changes.

CYBER-ATTACKS RISING IN UTAH, LIKELY DUE TO NSA FACILITY

Utah state officials have seen what they describe as a sharp uptick in attempts to hack into state computers in the last two years, and they think it related to the NSA data center south of Salt Lake City.

The increase began in early 2013 as international attention focused on the NSA's $1.7 billion warehouse to store massive amounts of information gathered secretly from phone calls and emails.

"In the cyber world, that's a big deal," Utah Public Safety Commissioner Keith Squires told a state legislative committee this week.

While most of the attempts are likely innocuous, cyber experts say it is possible low-level hackers, "hactivists" unhappy with the NSA's tactics, and some foreign criminal groups might erroneously think the state systems are linked to the NSA.

"Maybe these hackers are thinking: `If we can attack state systems, we can get info that NSA isn't releasing," said Richard Forno, director of the University of Maryland, Baltimore County's, graduate cybersecurity program.

The state tracks the attempts with an automated system it purchased after a breach of health care information in 2012. The system detects, stops and counts the attempts to get into the computers, Squires said.

Image: Pawel Kopczynski

With that new equipment in place in January 2013, the state was seeing an average of 50,000 a day with spikes up to 20 million, Squires told The Associated Press. In February 2013, the number rose to an average of 75 million attacks a day, with up to 500 million on some days.

Attacks include direct attacks on websites, emails fishing for passwords, and something called "port scans," where people probe a computer looking for weak spots.

The NSA didn't immediately have any comment about the attacks.

Tim Junio, a cybersecurity researcher at Stanford University, said what officials refer to as "attacks" are likely just "noise from low-tech people rather than concerted efforts for meaningful foreign intelligence collection."

But both Forno and Junio agree the NSA data center could draw the attention of hackers who think they can target state-run utilities that power the center. Being able to disrupt an NSA operation in any way would bring international notoriety to a foreign state or criminal group, Junio said.

State officials acknowledge that part of the increase is driven by an overall rise in hacking across the country. Hackers' motivations vary, and it was impossible to determine what might be behind the activity in Utah.

Some steal personal information, like customer lists, to commit identity theft. Some take control of email servers to steal messages, send unwanted advertising or disguise the origin of their communications. Some steal corporate or government secrets from email or cloud servers, or use unlocked file servers as digital "dead drops" for their hacking tools, pirated movies, stolen files and more.

For hackers seeking notoriety, the NSA would be a prized target because it employs the world's best hackers and routinely gives advice about how to keep computers safe from online criminals.
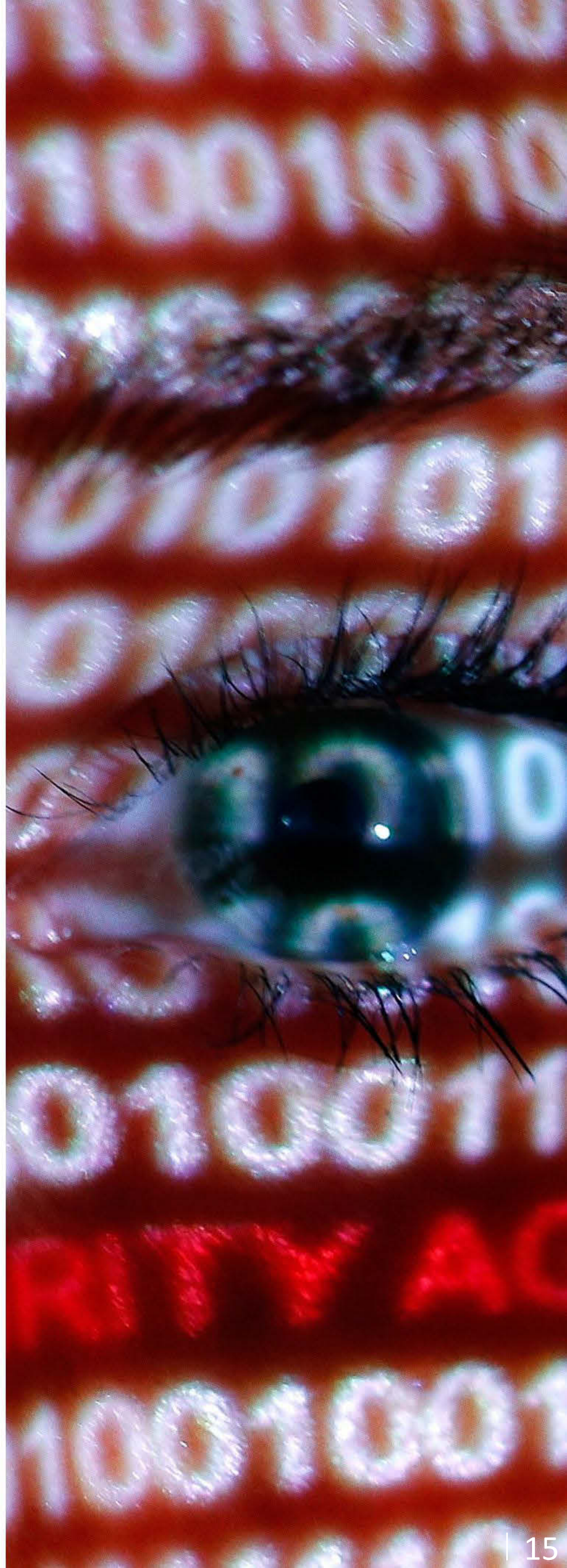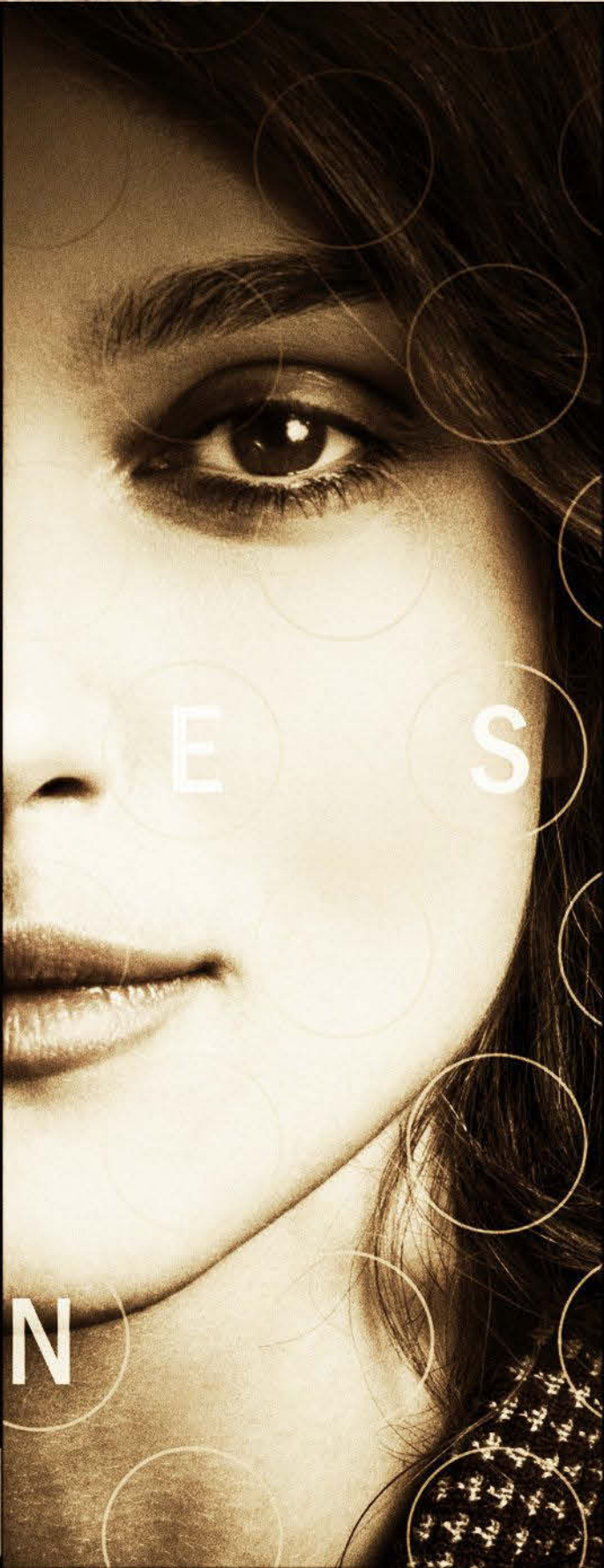
2015
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AWARDS BRING PLENTY
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SNUBS INCLUDE JENNIFER ANISTON AND DAVID OYELOWO

The Academy Awards always have given us a lot to talk about, and the situation was no different on the January 15 release of the nominees for the 87th ceremony. On February 22, at Los Angeles' Dolby Theatre, the Academy of Motion Picture Arts and Sciences will toast the successes of the latest award winners across some 24 categories. However, there has also been controversy about this year's list of nominees being the 'whitest' this century.

As always, in the run-up to this year's nominations being announced, there was much media speculation about who would - and wouldn't - make the cut. The critics raving over certain films and actors is no guarantee that the almost 6,000 voting members of the Academy - which makes up so many of the industry great and good - will necessarily feel the same.

As Variety Deputy Awards and Features Editor Jenelle Riley **put it on the eve of the nominations announcement**, "predicting Oscar nominations is far from an exact science. While there are indicators of how a film will do in the race - mainly guild nominations - you're relying on a lot of buzz and media hype. Going with your gut instinct over logic can pay off big, or be a killer in the office pool."

Image: Atsushi Nishijima

WHAT WAS BEING SAID PRIOR TO THE NOMINATIONS

Riley added, in an article setting out her "final predictions" for this year's Oscar nominations: "It's also hard to ignore personal biases. There are certain films I might not like, but have to acknowledge that the majority of the industry does."

She noted as "a pleasant surprise" that both Nightcrawler and Whiplash were doing well in precursor races, also expressing her "respect" for Selma and hoping that it would make the final list of nominations, despite widespread suggestions that it wouldn't, on account of its failure to register with guilds. Riley suggested Mr. Turner and Unbroken as other potential shock contenders.

Riley's tips for the final list of nominations included, in the category of Best Director, Wes Anderson for Grand Budapest Hotel, Ava DuVernay for Selma, Clint Eastwood for American Sniper, Alejandro G. Iñárritu for Birdman and Richard Linklater on account of his work on Boyhood. She also kept an open mind about the possibility of Mortem Tyldum displacing Eastwood for The Imitation Game, "if the love for his film is strong enough".
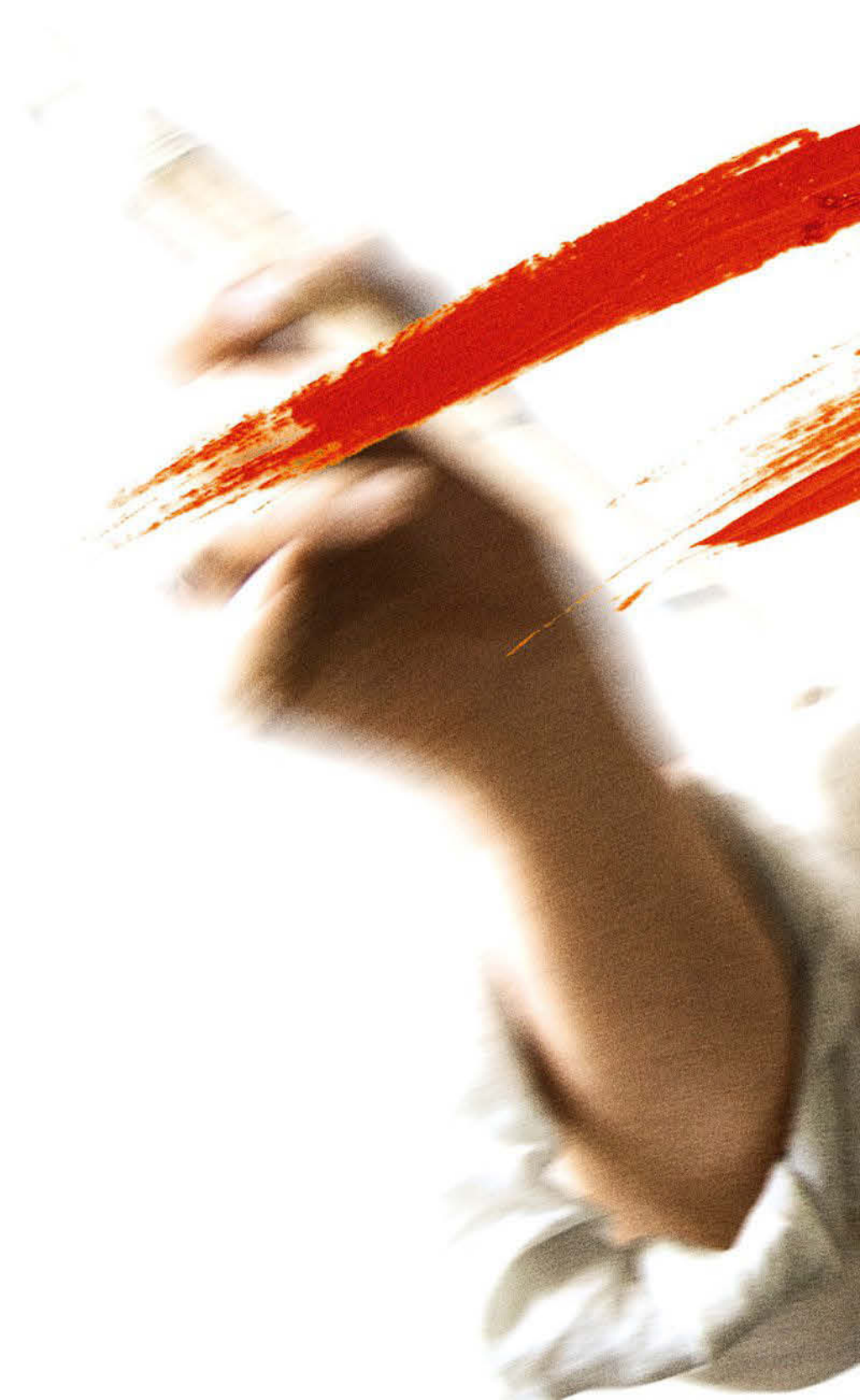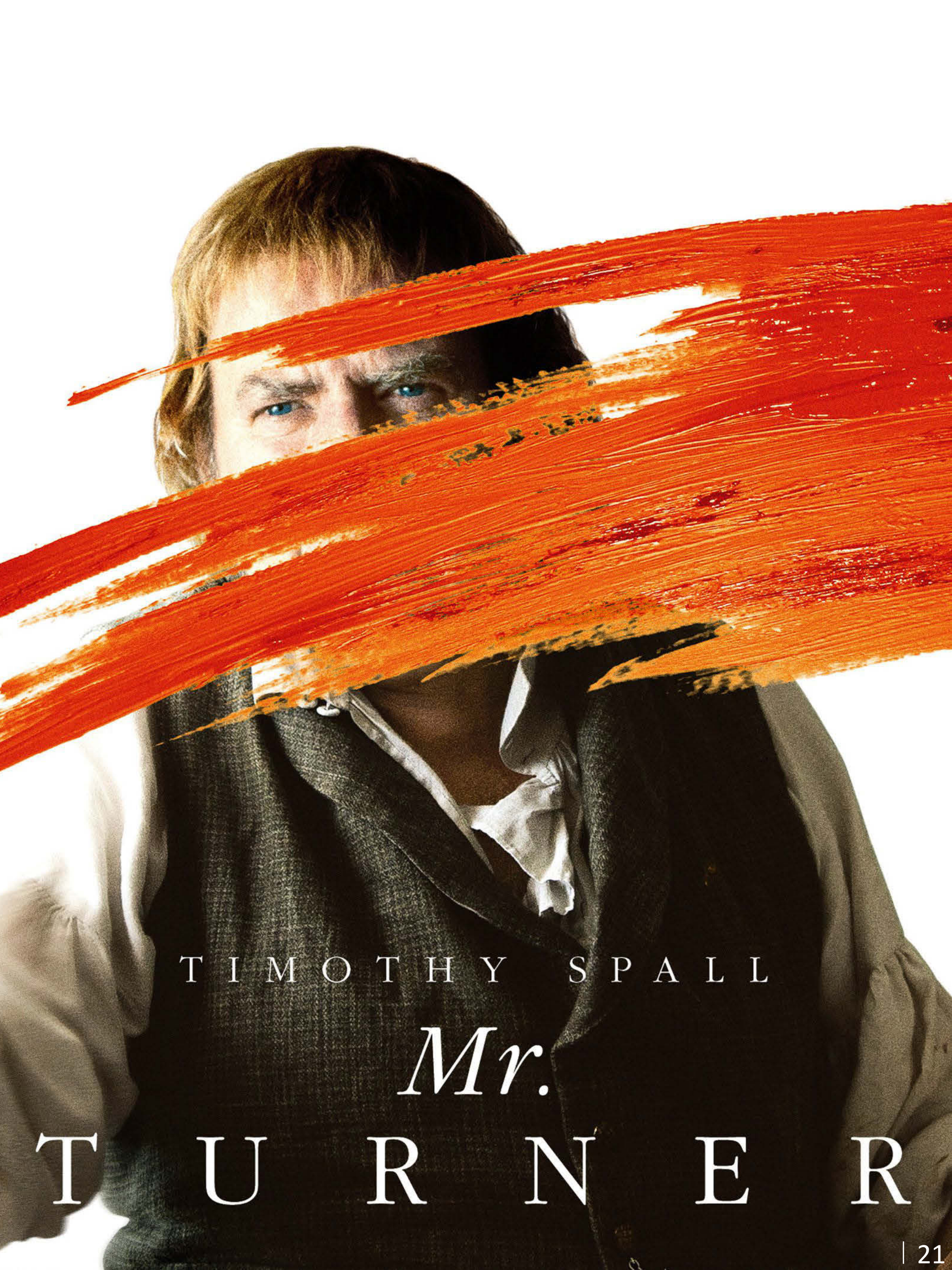
TIMOTHY SPALL

Mr.
T U R N E R

ANISTON AND JAKE GYLLENHAAL PROMINENT IN PRE-NOM TALK

As for the Best Supporting Actress gong, Riley admitted to "gambling on the love for Nightcrawler to push the fantastic Rene Russo into the race" - her other picks including the likes of Boyhood's Patricia Arquette, Keira Knightley for The Imitation Game, Birdman's Emma Stone and Meryl Steep for Into the Woods. She listed five contenders for Best Supporting Actor, meanwhile, namely Ethan Hawke, Edward Norton, Mark Ruffalo, J.K. Simmons and Tom Wilkinson.

Then, of course, there were the really heavyweight categories. Describing Best Actress as "the category that's due for a big surprise", Riley tentatively listed Cake's Jennifer Aniston among her nomination tips, despite admitting that "there are still a lot of people who don't see her as a true contender." She also wondered whether Amy Adams could get a nod for Big Eyes, despite that film's muted reception. In what she called "the most competitive Best Actor race I've ever seen", she reckoned the Golden Globe-winning Michael Keaton and Eddie Redmayne were the only certainties, although Jake Gyllenhaal winning all of the precursor nominations also earned him a mention.

Finally, Riley listed 10 tips for Best Picture, namely American Sniper, Birdman, Boyhood, Gone Girl, The Grand Budapest Hotel, The Imitation Game, Nightcrawler, Selma, The Theory of Everything and Whiplash - a collection that she described as "a pretty solid representation of the year 2014 in movies."

HOW THE NOMINATIONS ACTUALLY PLAYED OUT

Inevitably, the final list of nominations would never completely resemble any predictions, and there's no doubt that it made intriguing reading. **Eight films were nominated for Best Picture, for example, including Boyhood - which built on its Globes momentum** - and the less-expected Selma. The other runners and riders in this category were Birdman, The Imitation Game, American Sniper, The Theory of Everything, The Grand Budapest Hotel and Whiplash.

The Director category brought us the five nominations of Linklater, Iñárritu, Tyldum, Anderson and Bennett Miller for Foxcatcher - **neither Eastwood nor DuVernay making an appearance**. As for Best Actor, sure enough, both Keaton and Redmayne made the cut, along with American Sniper's Bradley Cooper, The Imitation Game's Benedict Cumberbatch **and the surprise inclusion of Steve Carell for Foxcatcher**.

The list of nominees for Best Actress consisted of Still Alice's Julianne Moore, Felicity Jones for The Theory of Everything, Rosamund Pike in Gone Girl, Marion Cotillard for Two Days, One Night and Wild's Reese Witherspoon - Aniston and Adams both falling short. Simmons, Norton, Ruffalo, Hawke and - contrary to Riley's prediction - The Judge's Robert Duvall are all in the running for Best Supporting Actor, Wilkinson missing out.

Unfortunately for Riley, Russo didn't make the final list of nominations for Best Supporting

Actress. Instead, **Arquette, Knightley, Stone, Streep and Wild's Laura Dern were left to fill out the positions**. It's yet another intense category that really promises to make this year's ceremony one to watch.

DISMAY OVER 'WHITE' OSCARS

While there is sure to be plenty of discussion about the artistic merits of the nominations and winners, there have also been some unwelcome headlines about a certain other aspect of the nominations list - the skin color of the participants. Indeed, the failure to include the likes of David Oyelowo has made this the least racially diverse year at the Academy Awards since its 70th running in 1998.

That's a particularly big shock given how different last year's ceremony was in that respect - Lupita Nyong'o having taken home the Best Supporting Actress gong and Steve McQueen's production of 12 Years a Slave landing him the Best Picture award. **Selma appearing in that category this year at least gives hope of an Ava DuVernay win**, but the overall picture is of a far-from-diverse nominations list, admittedly representing what remains a far-from-diverse industry.

The sheer whiteness of the final nominations list even inspired a social media hashtag, #OscarsSoWhite, started by ReignOfApril.com attorney and blogger April Reign, who commented to MTV News: "It's disconcerting that every single year, we can count the people of color who are

nominated on one hand. That really needs to change. It's not because there's a lack of quality films that star or feature people of color; that's not the issue."

She went on to draw attention to a recent article in The Atlantic **revealing 94 per cent of Oscar voters to be white and 76 per cent of them to be male, while also having an average age of 63 years old**. As Reign put it, "they might not be as interested in seeing Selma."

As for Oyelowo, he was left to accept the consolation of joining a list of celebrity presenters at the ceremony that also includes Aniston - **who might be especially smarting given how hotly-tipped she was for a Best Actress nomination** - along with Sienna Miller, Chris Pratt, Chris Rock, Kerry Washington and John Travolta.

THE ACADEMY AWARDS RETAINS ITS ABILITY TO SURPRISE

If there's anything that all of these running stories suggest, it's that the Academy Awards - including who is chosen for a nomination, and by whom - still very much matter. The amateur and professional critics alike are sure to rant and rave about the inclusions and omissions this year, while picking their personal favorites among those who did make the cut. This year's ceremony is sure to be quite the watch. ∎

by Benjamin Kerry & Gavin Lenaghan

REPORT: AUTOMAKERS FAIL TO FULLY PROTECT AGAINST HACKING

Automakers are cramming cars with wireless technology, but they have failed to adequately protect those features against the real possibility that hackers could take control of vehicles or steal personal data, a member of the U.S. Senate is asserting.

Basing his argument on information provided by manufacturer, Sen. Edward Markey has concluded that "many in the automotive industry really don't understand what the implications are of moving to this new computer-based era" of the automobile.

The Massachusetts Democrat has asked automakers a series of questions about the technologies - and any safeguards against hackers - that may or may not have been built into the latest models of their vehicles. He also asked what protections have been provided to ensure that information computers gather and often transmit wirelessly isn't used in a harmful or invasive manner.
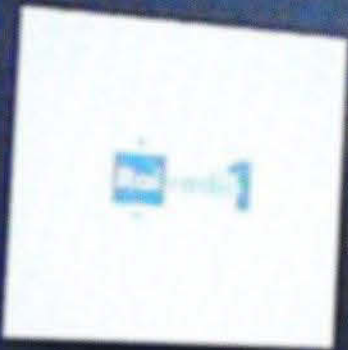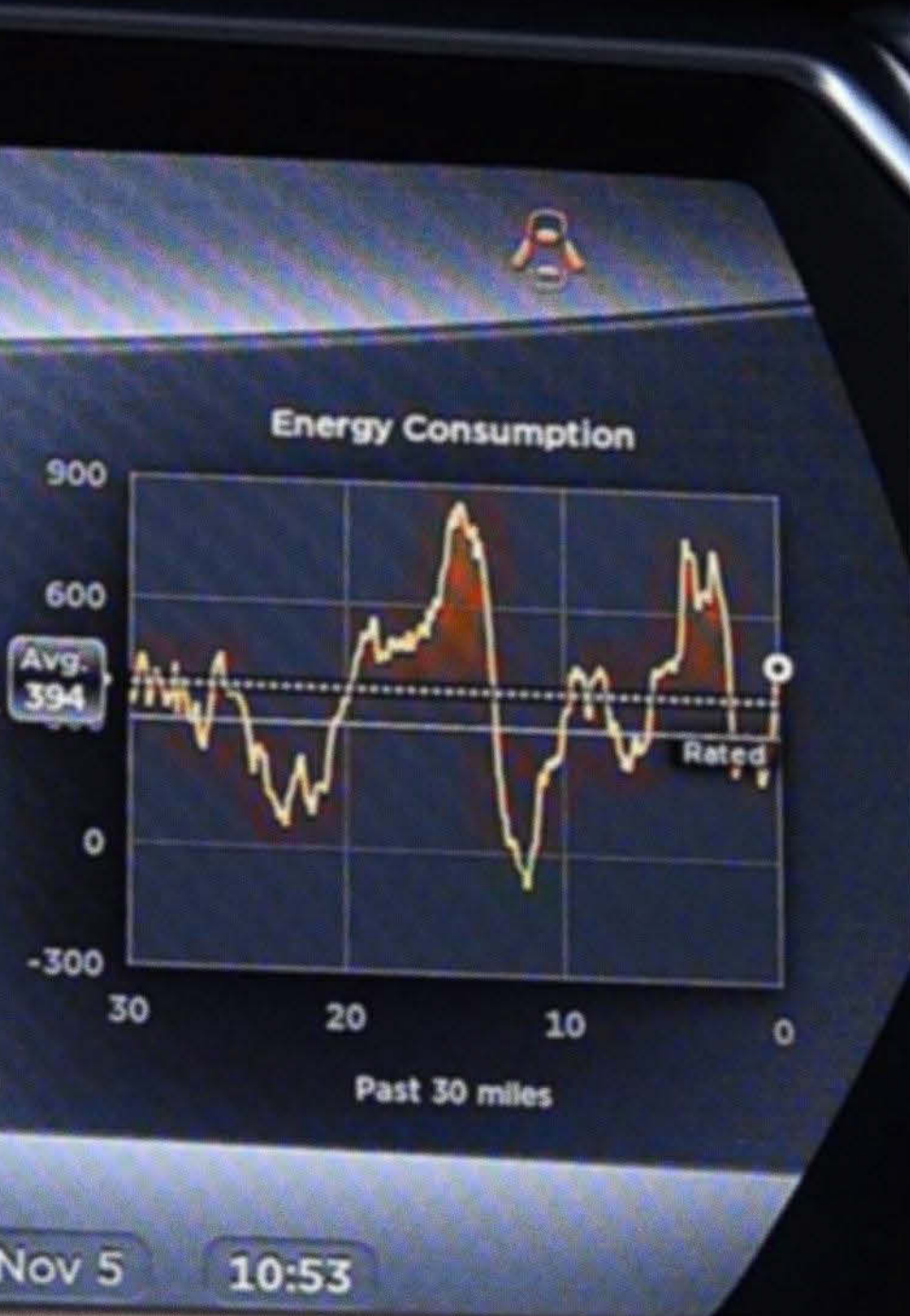
Appearing Monday on "CBS This Morning," Markey said motorists should be asking questions because "there really aren't any clear guidelines on the books."

Markey said the movement of the automobile from the combustion engine era to the computer era carries wide implications. "No longer do you need a crowbar to break into an automobile," he said in the interview. "You can do it with an iPad."

Markey posed his questions after researchers showed how hackers can get into the controls of some popular cars and SUVs, causing them suddenly to accelerate, turn, sound the horn, turn headlights off or on and modify speedometer and gas-gauge readings.

The responses from 16 manufacturers "reveal there is a clear lack of appropriate security measures to protect drivers against hackers who may be able to take control of a vehicle or against those who may wish to collect and use personal driver information," a report by Markey's staff concludes.

Today's cars and light trucks typically contain more than 50 electronic control units - effectively small computers - that are part of a network in the car. At the same time, nearly all new cars on the market today include at least some wireless entry points to these computers, such as tire pressure monitoring systems, Bluetooth, Internet access, keyless entry, remote start, navigation systems, WiFi, anti-theft systems and cellular-telematics, the report said. Only three automakers said they still have some models without wireless entry, but those models are a small and declining share of their fleets.

"Americans are basically driving around in computers," Markey said.

Most new cars are also capable of collecting large amounts of data on a vehicle's driving history through an array of pre-installed technologies, including navigation systems, telematics,

infotainment, emergency assistance systems and remote disabling devices that allow car dealers to track and disable vehicles whose drivers don't keep up with their payments or that are reported stolen, the report said.

Half the manufacturers said they wirelessly transfer information on driving history from vehicles to another location, often using third-party companies, and most don't describe "an effective means to secure the data," the report said.

Manufacturers are also using personal vehicle data in various and often vague ways to "improve the customer experience," the report said. Policies on how long they store drivers' information vary considerably. Customers often are not made aware explicitly of the data collection and, when they are, they frequently cannot opt out without disabling valuable features like navigation.

Last November, 19 automakers accounting for most of the passenger cars and light trucks sold in the U.S. agreed on a set of principles to protect motorists' privacy. The voluntary agreement was aimed in part at heading off possible legislation. Markey has said voluntary efforts don't go far enough.

The auto industry is also in the early stages of establishing a voluntary information sharing and analysis center or other comparable program about existing or potential cyber-related threats. "But even as we explore ways to advance this type of industrywide effort, our members already are each taking on their own aggressive efforts to ensure that we are advancing safety," the Alliance of Automobile Manufacturers said in a statement.

The Society of Automotive Engineers also has established a security committee that is evaluating the vulnerability of cars to hacking and is drafting "standards and best practices to help ensure electronic control system safety," the alliance said.

The Association of Global Automakers, another trade association, said the responses provided to Markey are many months old and don't reflect extensive discussions between the industry and federal technology experts aimed at improving the industry's understanding of cyber threats.

The manufacturers who replied to Markey are BMW, Chrysler, Ford, General Motors, Honda, Hyundai, Jaguar Land Rover, Mazda, Mercedes-Benz, Mitsubishi, Nissan, Porsche, Subaru, Toyota, Volkswagen-Audi and Volvo. Three other automakers - Aston Martin, Lamborghini and Tesla - didn't reply to his request for information.
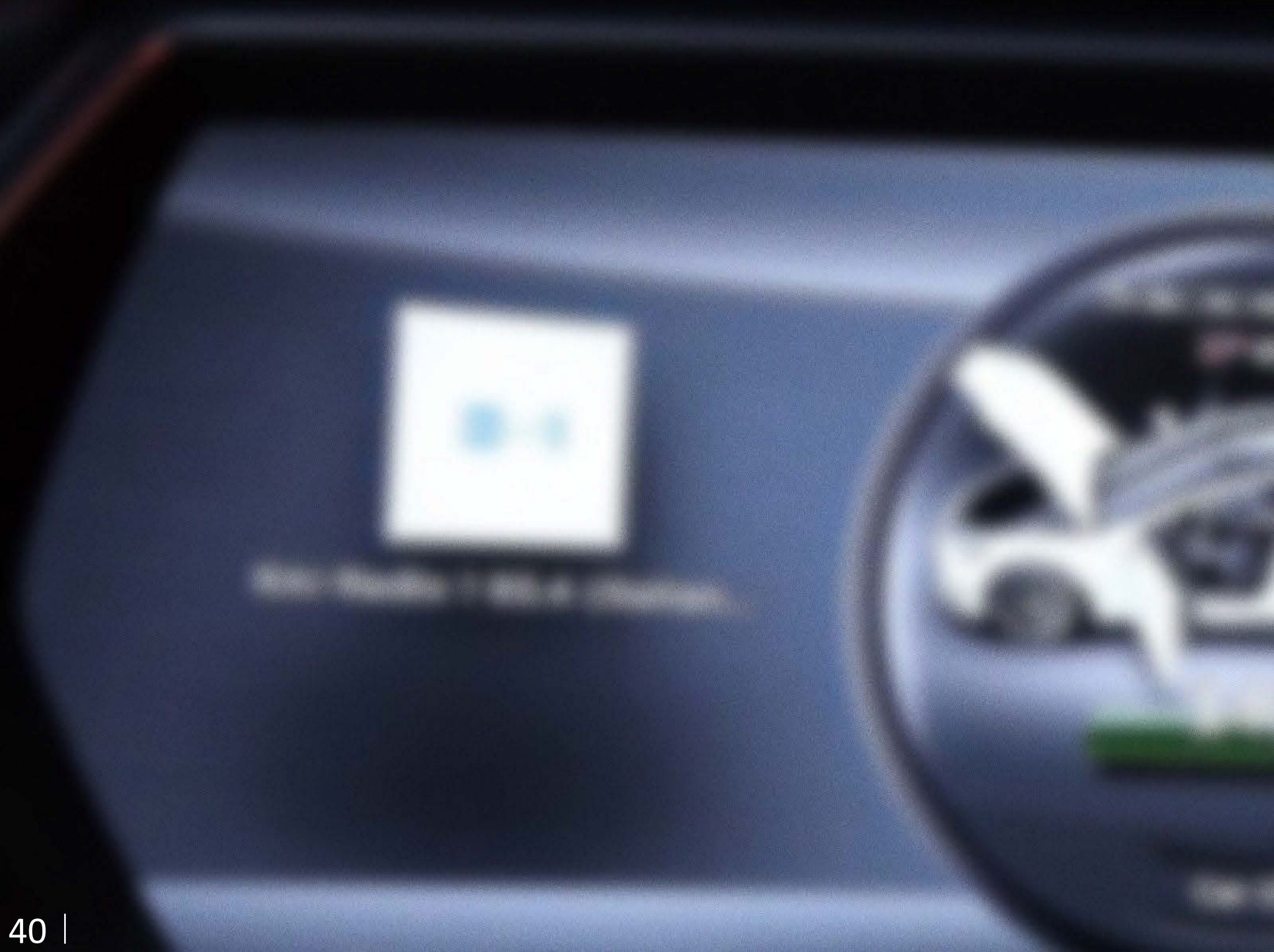
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DISH'S ONLINE TV PACKAGE DEBUTS WITH ADDITION OF AMC

Dish Network's online television package, Sling TV, has made a formal debut Monday with additions to its previously announced lineup.

The $20-a-month package now comes with AMC, joining a lineup of 11 other channels that include ESPN, CNN and the Disney Channel. That means subscribers will be able to watch "Mad Men," "The Walking Dead" and the "Breaking Bad" spinoff "Better Call Saul."

Sling TV also announced a $5-a-month add-on package for sports fans. It adds the SEC Network, Universal Sports and secondary ESPN channels such as ESPN Bases Loaded and ESPN Goal Line. The main package comes with ESPN and ESPN2 along with access to an on-demand WatchESPN app.

Before Monday's launch, Sling TV was available on an invitation basis.
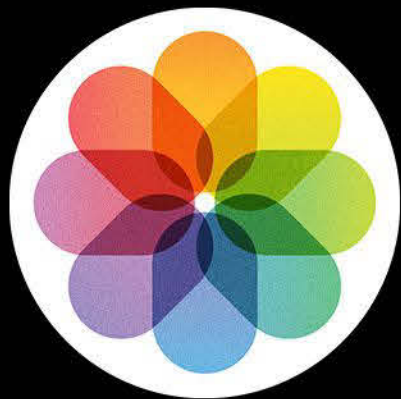
Photos
for OS X
finally revealed

Mac's Photos app narrows gap
between desktop and mobile

AN EXTREMELY FAST REPLACEMENT FOR iPHOTO

When it comes to image editing, Apple Mac users have long depended on the trusty iPhoto - a firmly established solution for manipulating digital photographs, but far from perfect. Now, its successor has finally been unveiled, a developer seed version of the simply-titled Photos having now been distributed to developers. But how good is it? The short answer is "very good indeed".

However, let's first have a bit of back-story. The iPhoto software has been familiar to Mac users since the release of the first version in 2002, and has long been an indispensable tool for the editing, printing, importing, organizing and sharing of digital photos. It has served as the Cupertino company's go-to image editing program with distinction, but of course, all good things must come to an end.

Sure enough, last year, Apple announced that development would cease on not only iPhoto, but also its accompanying professional photo editing suite, Aperture. We also got news at that time that the replacement product would be developed from the ground up, with a close connection to the cloud. That product turned out to be Photos, which promises much as a new breed of image-editing software for OS X Yosemite.

WHAT THE APP CLAIMS TO OFFER

The developer seed version of Photos will be followed by a public beta version, and finally the version of the app that will be used by the
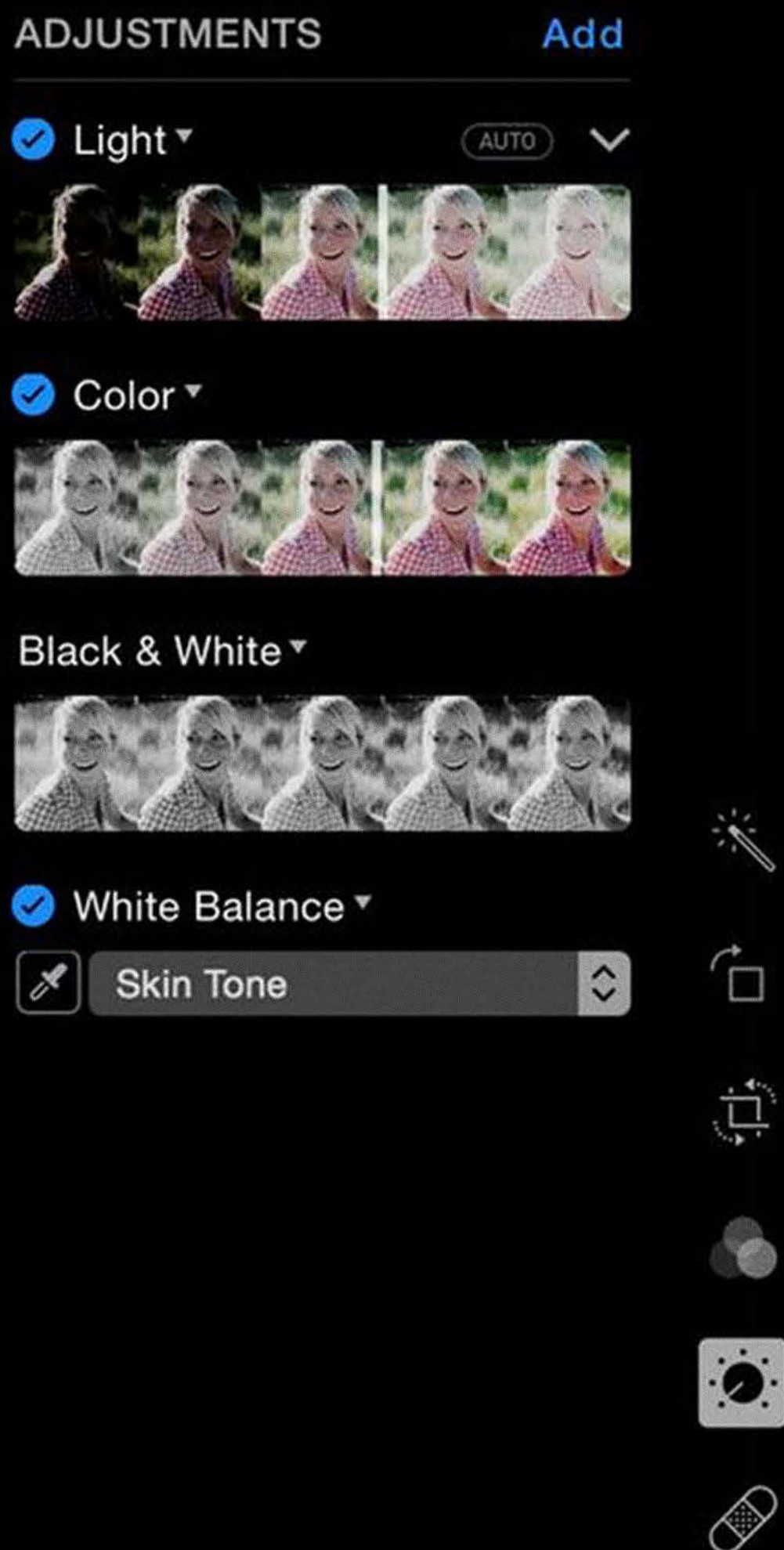
ordinary mortal you and me. Intriguingly, the software will take the form of a free update for Mac users.

As for what those users will get, the section of the Apple website dedicated to the new software is as bullish as you would expect. Photos will apparently bring you "Your entire photo collection... framed in a whole new way", the design of the "ground up" program being "easy-to-use and streamlined". The editing tools are said to be "powerful and intuitive", **and it should be a cinch to "keep your growing library organized and accessible."**

Apple has also placed a great emphasis in its publicity on the iCloud Photo Library, which supposedly provides space for the storage of "a lifetime's worth of photos and videos". This being the cloud, you will naturally be able to access those photos and videos from any of your Mac or iOS devices at whatever time takes your fancy.

WHAT THE NEW SOFTWARE IS ACTUALLY LIKE

Inevitably, whenever some new Apple software is released, even on a supposedly restricted basis, there are always reviewers of both an amateur and professional nature, ready to pass judgment on it. **Various 'hands-on' verdicts on the program have already sprung up online**.

The first thing to catch the attention of those reviewers has, of course, been the aesthetic aspect of the new software. It's clear from the

way the software looks how committed Apple is to narrowing the gap between desktop and mobile, with Photos sporting the same flat look of its iOS counterpart - and the program seems to be even easier than iPhoto to navigate, too.

Apple has created many well-loved hardware and software products, but the venerable iPhoto wasn't one of them, in large part because it seemed slow - increasingly so every year. The boys and girls of Cupertino seem to have taken that feedback to heart when devising Photos for OS X, creating a solution that makes it so much faster and more effortless a process to flick through your pictures.

There are four main tabs that the app gives you to navigate. These include Photos, which presents you with your images in chronological order, as well as Shared, which is where you will find the photos from your shared image streams. The Albums tab contains your self-created albums, while Projects not only stores your slideshows, but also gives you a convenient portal through which to buy products making use of your printed photos, such as books, cards and calendars.

THE OPINIONS OF THE PROFESSIONALS

The Verge writer Casey Newton was among the many to respond positively to the emergence of the new software. He declared it to be "fast, fast, fast", adding that it would

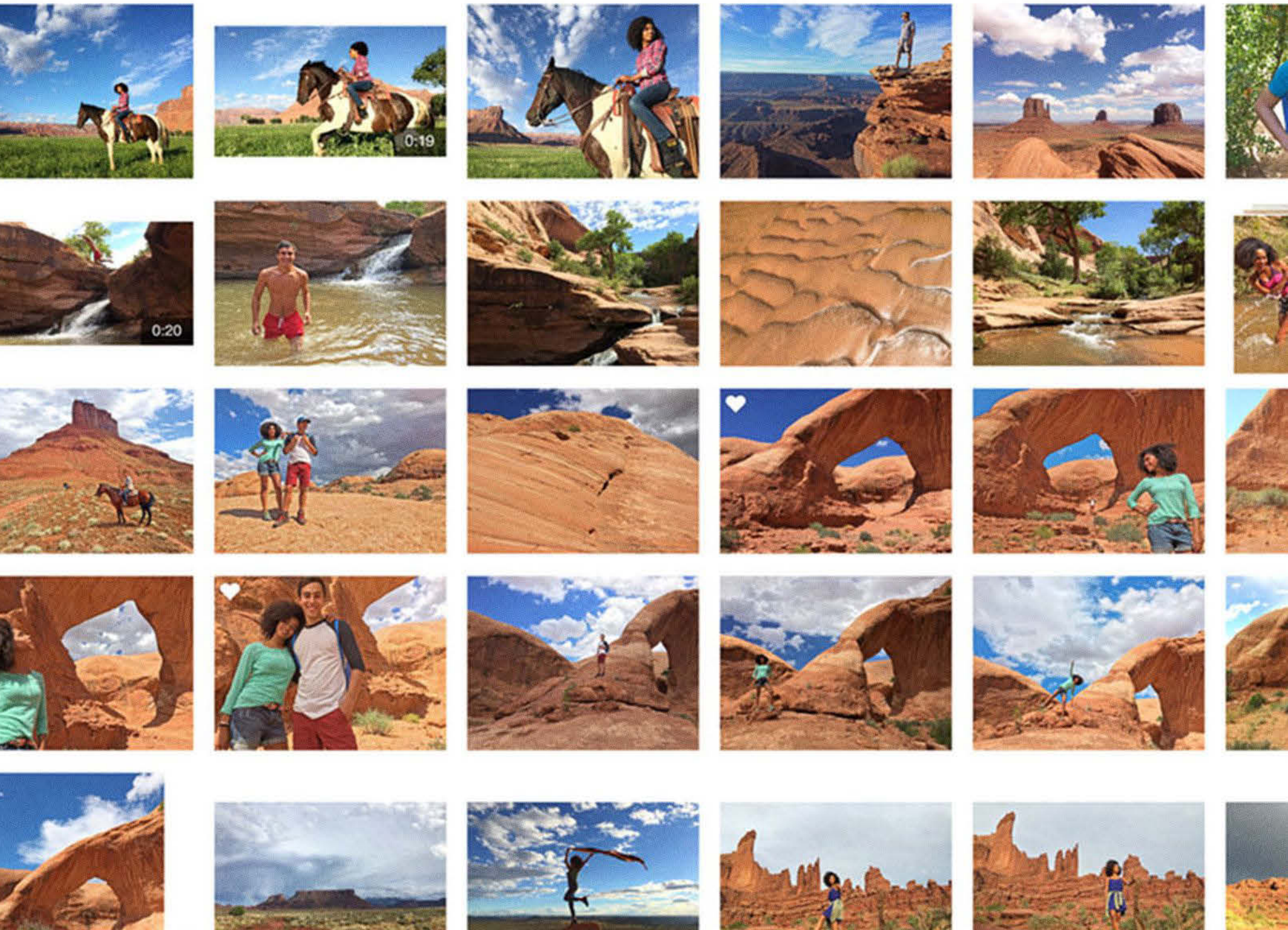"likely feel like an improvement for most iPhone users" - albeit with the caveat that "users of Aperture's more powerful editing and organizational features are likely to find it wanting."

Newton continued that the picture library was "clean" and "reasonably intuitive", and that the app "should be easy to navigate for anyone who has spent time with an iPhone... on the whole it's a much easier system to navigate. And since the software is brand new, it's super fast, even with a large library of photos - at least, it was on the new MacBook Pro we tested it on."

Engadget reviewer Dana Wollman, meanwhile, **described the software as "all very impressive (and pretty), and generally a welcome upgrade from the ageing iPhoto"** - although she did also acknowledge that the editing tools wouldn't be sufficient for some people with more advanced demands, even if "for everyday users, it should fit the bill, and be easy to use, too."

Another who had the opportunity to take an early look at the program was Macworld's Christopher Breen, who said that "my general impression is that it hits a sweet spot for the casual-to-enthusiastic iOS and digital camera shooter", **describing its navigation as "more nimble" and its performance as a "significant" improvement over that of iPhoto**.

Christina Bonnington, meanwhile, writing for Wired, **praised Photos as a "vast improvement" over its predecessor,**

drawing attention to the new editing tools that she said "make it extraordinarily easy to transform a photo from 'OK' to 'Wow.'" She also seemed impressed by the software's "straightforward" interface.

AN AMAZING RANGE OF FUNCTIONALITY

One only needs to have a casual peruse of the Photos software for oneself to realize what these critics are raving about. The iCloud element of the program is certainly not to be underestimated - after all, there's nothing quite as convenient as being able to take a selfie with your iPhone and immediately being able to access it from your Mac and other iOS devices as well, given that each new photo is automatically added to iCloud Photo Library.

This is where the redesign of the OS X software to bring it into line with iOS makes so much sense, as it's nice to be able to sift through your photos on your desktop device, and then on your phone or tablet, without having to learn your way through what may have otherwise been very different image viewing and editing software programs. If you edit a photo on your Mac or even add to an album, those changes will be represented on your other devices, as well as on iCloud.com.

The software's Moments, Collections and Years views allow you to look at your photos on the basis of their time and location, with gestures making the process of perusing your images even easier. The editing tools have a
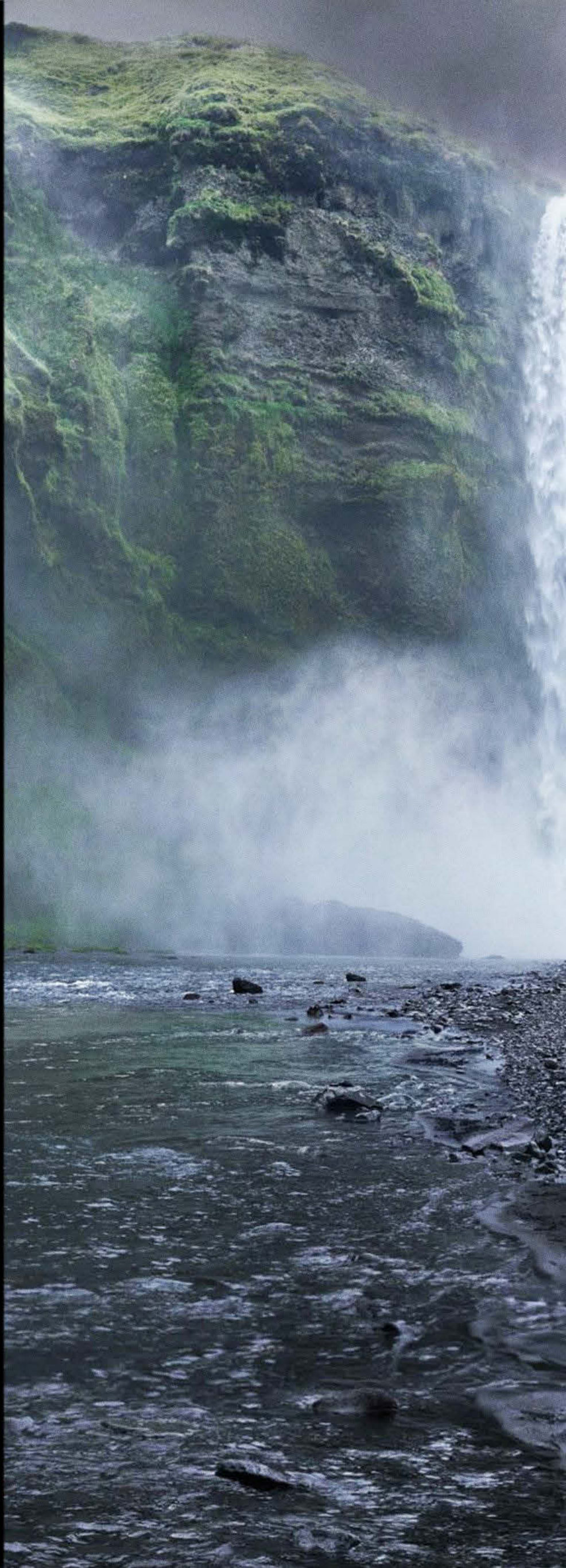
similar combination of ease of use and resounding impact, whether you choose the Enhance option to instantly improve your photos or adjust lighting and color with the Smart Sliders.

There are many more advanced parameters than those that you are able to play with for a given image, encompassing white balance, definition, vignette and more. In a post-Instagram world, many users will also be pleased by the eight in-built filters that allow for even more striking effects to be instantly added. Oh, and the Share menu even takes so much of the potential hassle out of the sharing of your images with the outside world, such as via Facebook and Twitter.

A FORMIDABLE PROPOSITION OVERALL

We may not be getting the final product until the spring, but we've already seen and heard enough about Photos for OS X Yosemite to be convinced that it is a worthy successor to iPhoto. It isn't an absolutely perfect solution, as many reviewers have already pointed out, but the vast majority of Mac users are likely to find it a true enhancement to their experience of viewing and editing photos on their desktop machine, in close conjunction with their smartphone and tablet devices. ■

by Benjamin Kerry & Gavin Lenaghan

ADJUSTMENTS   Add

✓ Light

✓ Color

Black & White

✓ Definition

| Amount | 0.30 |

✓ Vignette ⌄   ⌃

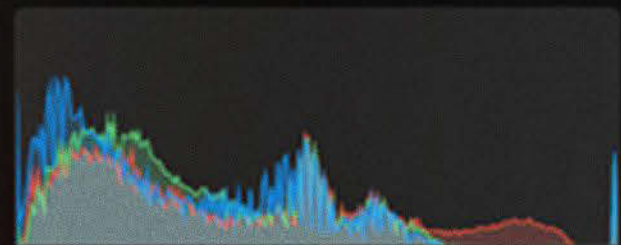| Strength | 1.00 |
| Radius | 0.75 |
| Softness | 0.36 |

✓ White Balance

| 🔬 | Skin Tone | ⌄ |

✓ Levels

Reset Adjustments

LET HACKERS IN: EXPERTS SAY TRAPS MIGHT BE BETTER THAN WALLS

Ever since the Internet blossomed in the 1990s, cybersecurity was built on the idea that computers could be protected by a digital quarantine. Now, as hackers routinely overwhelm such defenses, experts say cybersecurity is beyond due an overhaul.

Their message: Neutralize attackers once they're inside networks rather than fixating on trying to keep them out.

First they need to convince a conservative business world to gamble on a different approach. And having sold generations of defensive systems that consistently lagged the capabilities of the most advanced hackers, the industry itself must overcome skepticism it's flogging another illusion of security.

detected or revealing themselves, underscoring the weakness of conventional tools in identifying sophisticated intruders.

The traditional defenses must "have a description of the bad guys before they can help you find them," said Dave Merkel, chief technology officer at FireEye Inc. "That's just old and outmoded. And just doesn't work anymore," he said.

"There's no way to guarantee that you never are the victim of cyberattack."

Merkel said in the worst case he knows of, attackers hid themselves for years.

Experts aren't recommending organizations stop deploying perimeter defenses such as antivirus software or firewalls that weed out vanilla threats. But they say a strategy that could be likened to laying traps is needed to counter the sophisticated hacks that can cause huge losses.

The weakness of relying on a firewall is that it's like building a fence around a housing complex but not hiring a guard to patrol the interior streets, said Ed Amoroso, chief security officer at AT&T.

The hackers who targeted Anthem, the second biggest U.S. health insurer, and accessed personal information of 80 million customers, may have been inside its system for more than a month before being detected, according to the company.

In the famous Sony Pictures hack, the attackers who breached the Hollywood studio's network went unnoticed until computers were paralyzed and a mountain of data was dumped on the Internet.

The amount of data copied and removed from Sony's systems should have set off internal alarms long before Sony workers found their PCs taken over by malware, said Mike Potts, CEO of Lancope, a network security company based in Alpharetta, Georgia.

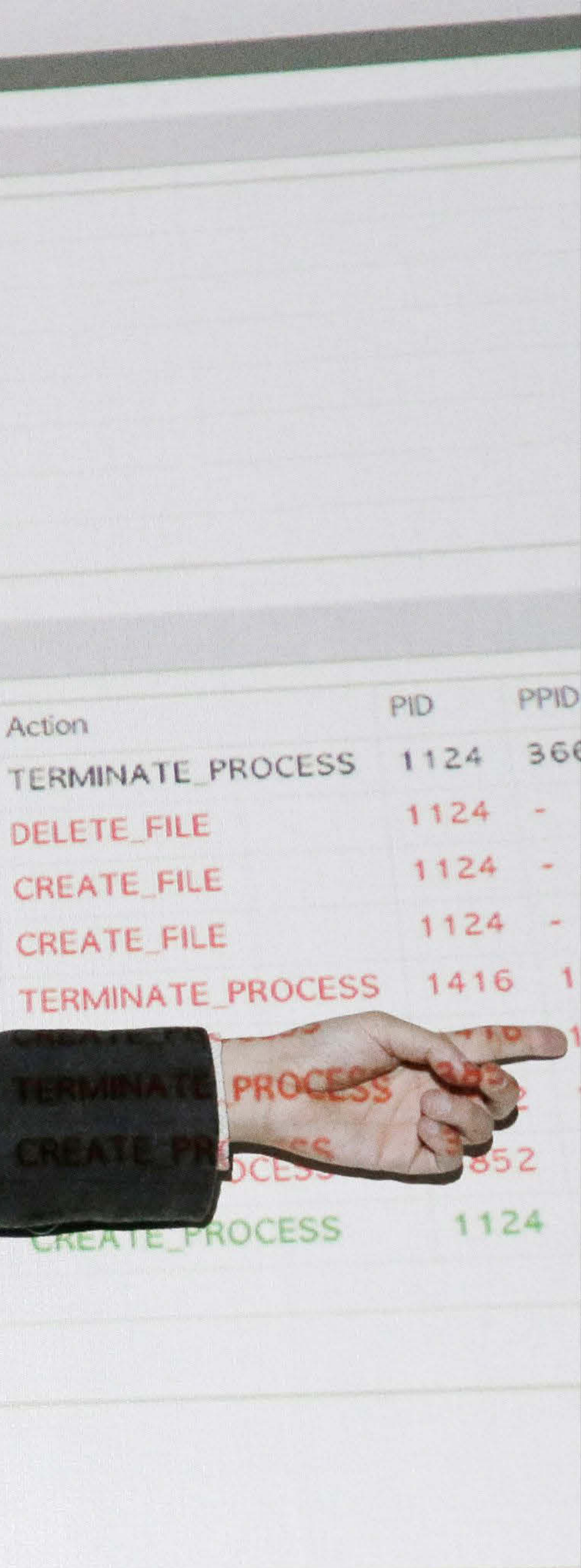contentNotificationMonitorPop.php?num=97637&windowid=67675B29C...

로 되어 있습니다. 번역하시겠습니까?　　번역 안함　　번역　　영어 번역 안함

Address　192.168.46...
ddress　192.168.4...
여 이름　CUVEPIA_P...
생일시　2015.01....
PID　1124
PPID　3668
내용　C:\Windows\S...
경로　C:\Users\CU...

발생일시　　　　　　　　종류
...C　2015.01.19 14:03:04　프로세스
2015.01.19 14:02:39　파일
2015.01.19 14:02:34　파일
...5.01.19 14:01:56　파일
...5.01.19 14:01:50　프로세스
...9 14:01:32　프로세스
...9 14:01:32　프로세스
...19 14:01:04　프로세스

달기

The cybersecurity industry characterizes such long-term intrusions as advanced persistent threats or APT. They are often sponsored by states and target valuable commercial and military information.

In South Korea, where government agencies and businesses have come under repeated attacks from hackers traced by Seoul to North Korea, several security firms have jumped on the growing global trend to develop systems that analyze activity to detect potentially suspicious patterns rather than scanning for known threats.

Kwon Seok-chul, CEO at computer security firm Cuvepia Inc., said it has been tough to convince executives that it's more effective to catch bad guys after they've infiltrated a network instead of trying to keep them out, which he believes is impossible anyway.

Kwon said his company's latest monitoring product keeps a log of all activity, dividing it into authorized users and possible attackers. When certain conditions are met, the program sounds an alarm. A response team, he said, can sit back and watch what hackers copy and respond before damage is done. The security team can cut the hacker's connection or trick the intruder into stealing empty files.

"Because hackers are in your palm, you can enforce any measures that you want," said Kwon, member of an advisory board for South Korea's cyberwarfare command.

In one case, the security team at one of Kwon's clients "enjoyed" watching for about an hour as a hacker scanned its network and installed tools to unlock passwords and counter antivirus programs.

He said that for skilled hackers, it usually takes about 20 minutes to lay out the initial steps of the attack that allow them to stealthily roam a network. Normally the security team

Image: AP Photo/Ahn Young-joon

would counterattack within a few minutes after gathering intelligence about the hacker's tools. But in this case, the hacker was not sophisticated and employed well-known programs mostly made in China.

Eventually, the security team severed the hacker's connection to the victim's computer based on the unique ID of the program that Cuvepia's software showed the hacker was using.

According to FireEye's Merkel, there is a rise in awareness in the U.S. and growing interest in Asia in modern approaches to information security that include using automated programs to scan for unusual network activity, encryption and segregating sensitive data in special "domains" that require additional credentials to access.

But many companies are in denial about their vulnerability or are reluctant to spend more on cybersecurity, he said.

In the financial industry at least, part of the reason is greater concern with meeting regulatory requirements for security than improving security itself.

When encryption is used, South Korean courts have limited the liability of companies that faced lawsuits from customers over stolen data, said Hwang Weoncheol, a former chief information security officer at a South Korean financial institution. That reinforces the security strategy centered on compliance with regulation, he said.

Protecting high value information often comes with a high price tag.

Installing Cuvepia's cheapest monitoring product on 1,000 computers for a year costs 450 million won ($410,000). That is many times the cost of installing antivirus software though the cost drops significantly after the first year.

The answer for executives, said Kwon, is to see cybersecurity as an investment not a cost.

FLIPBOARD MAGAZINES NOT JUST FOR MOBILE ANYMORE

Smartphones and tablets have been pushing the personal computer aside, thanks in part to popular apps made by mobile-first entrepreneurs like Flipboard CEO Mike McCue.

Just don't tell McCue the desktop is dead.

In fact, the PC remains the mode of choice for many readers, especially during business hours. McCue is catering to that preference with Tuesday's launch of a Web browser version of Flipboard's digital magazine service. Until now, Flipboard's 15 million magazines could only be read through a mobile app.

"There is a whole group of people who don't do that much browsing on their phones. That's what they use their computer for," McCue said during an interview at Flipboard's Palo Alto, California, headquarters.

Besides winning new converts with the expanded access, McCue is also hoping many of Flipboard's 50 million existing users will visit the service more frequently now that it's on PCs.
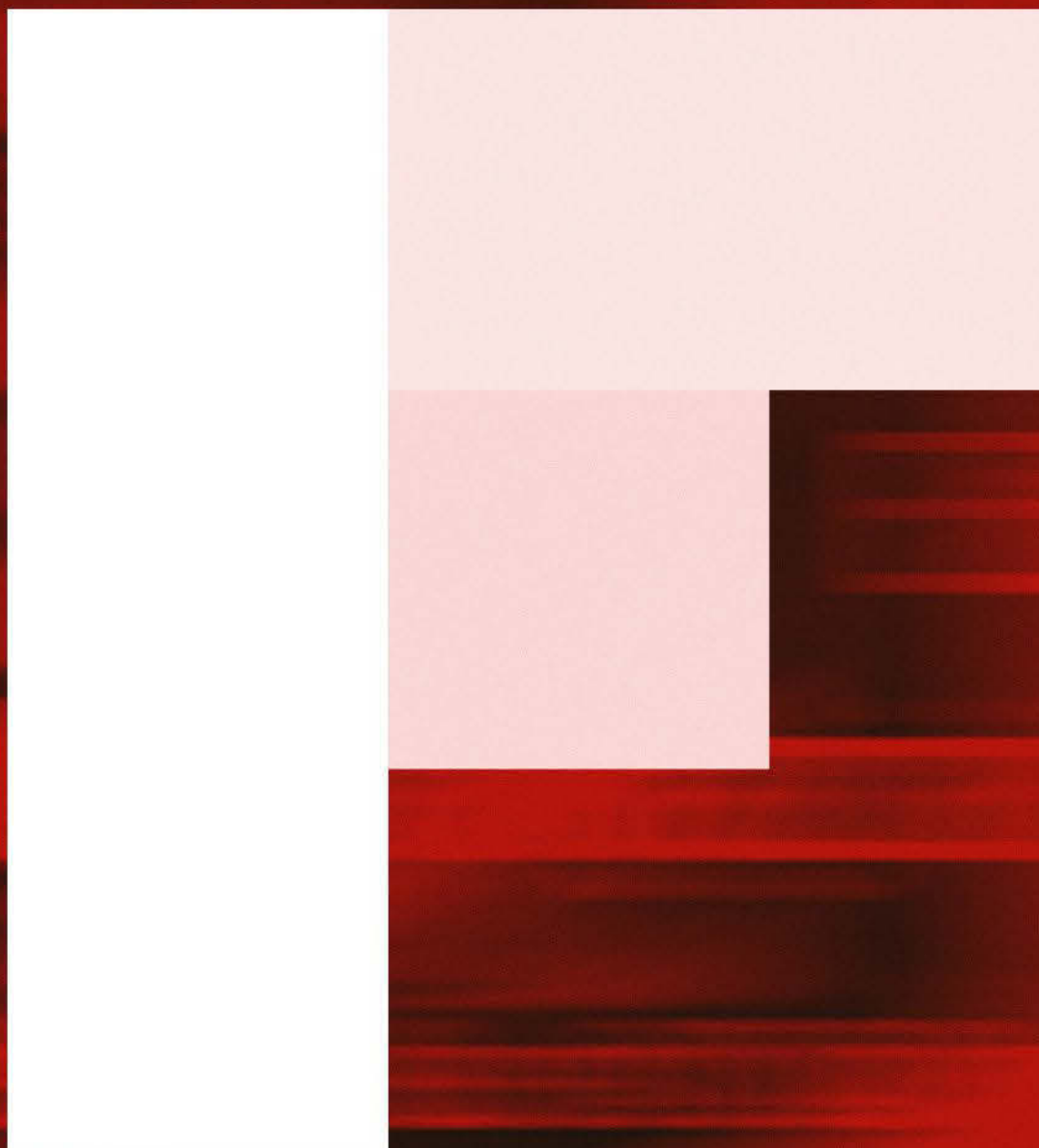
PC sales have been slumping for the past two years, though there have been recent signs the worst of the decline is over. Meanwhile, sales of mobile devices are still surging despite a recent slowdown in the tablet market. Worldwide PC shipments declined 2 percent last year to about 309 million machines while smartphone sales climbed 28 percent to 1.3 billion devices and tablet sales increased 4 percent to 230 million, according to the research firm International Data Corp.

All but a few of the magazines in Flipboard are free. They are created through links culled from users' social media accounts or put together by other Flipboard users interested in sharing their interests and expertise with other readers, as well as professional publishers trying to expand their digital audiences. Flipboard lists the magazines under 34,000 different topics.

Flipboard was originally designed for tablets, but smartphones now account for about 70 percent of user activity, McCue said. That figure seems likely to change now that it's been tailored for the desktop. PCs remain the most popular way to access Internet services during the weekdays when most people are at work, with smartphones running second, according to data from comScore Inc. It isn't until the evening when tablets become the leading Internet-connected device, with peak usage occurring around 8 p.m. to 9 p.m.

Flipboard isn't the only popular mobile app making the leap to the PC in search of new users and deeper engagement. Last month, Facebook's mobile messaging service WhatsApp offered a version for Web browsers, although a user's smartphone must be on and online for the syncing to work. The trend reflects a growing realization among mobile-focused apps that they can't ignore PCs if they want to connect with users as much as possible, said Forrester Research analyst Frank Gillett. "It doesn't make sense to users if they up show up to a service on a PC and
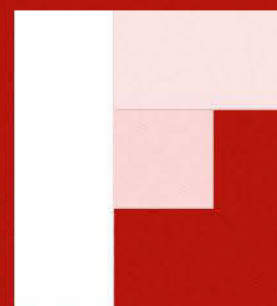
Image: Eric Risberg, AP

get ignored, but get all this magic if you show up on a mobile device."

Flipboard's Web browser version, built over the past 18 months, is designed to detect and automatically adjust to the different screen sizes of PCs. The largest canvas of PC screens allows Flipboard to rearrange the way the content appears on desktops so compelling pictures are showcased in bigger sizes and different layouts than on a smartphone, or even a tablet. For now, the magazine pages on Flipboard's PC version are scrolled through with a mouse instead of flipped through with a touch as on the mobile apps.

Coming to the PC fulfills McCue's original vision for Flipboard when he came up with the idea in 2009 shortly after leaving Tellme, a voice-recognition service that he started and eventually sold to Microsoft for $800 million. After concluding that Web browsers and chips at that time were too clunky to produce digital magazines that looked as snazzy as print editions, McCue and Flipboard co-founder Evan Doll turned their attention to the iPad before moving on to smartphones.

"Our users sitting in front of their PCs can finally stop wondering why they can't use Flipboard," McCue said.
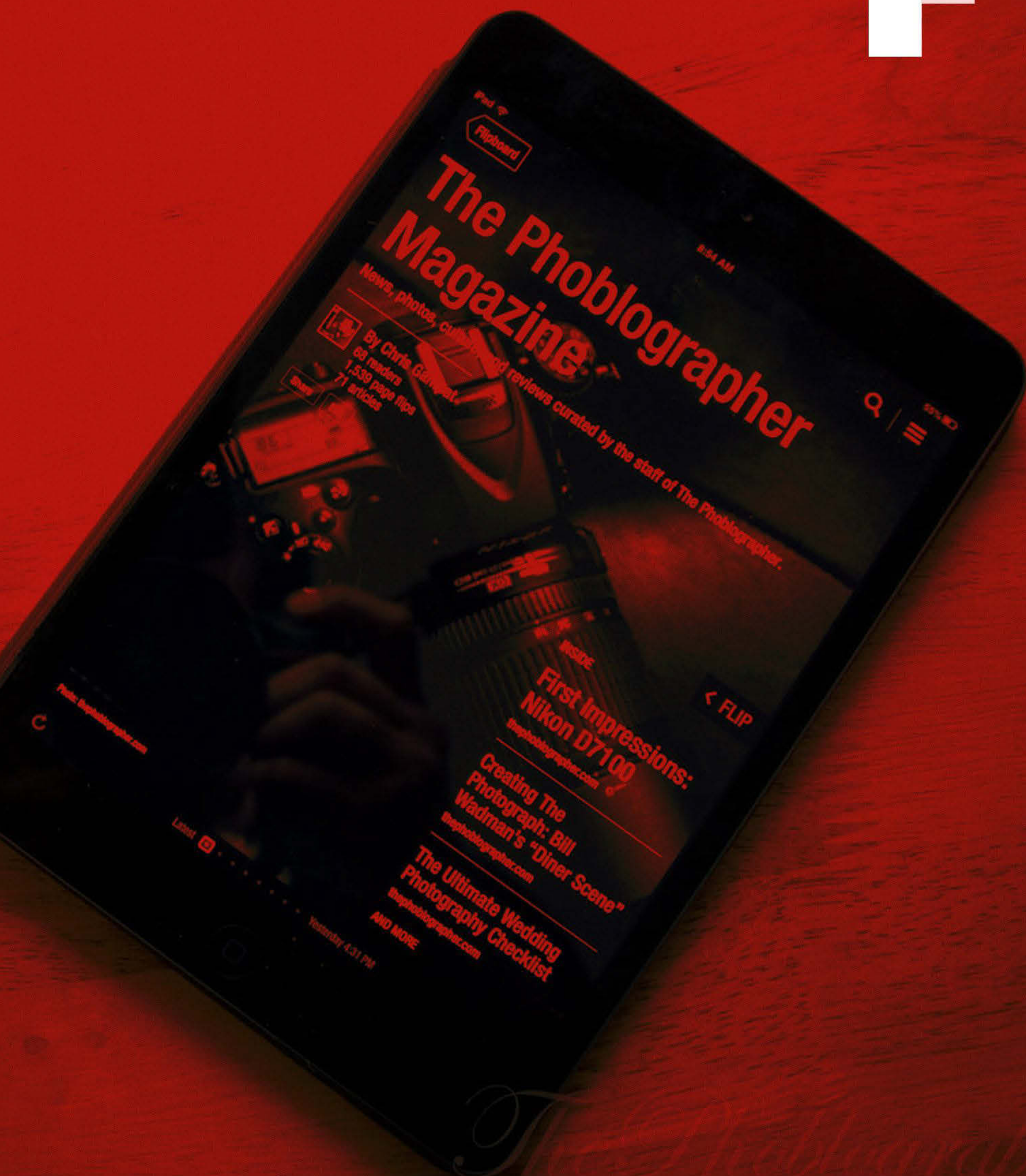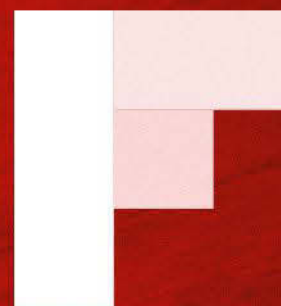
TOP Free Apps

iOS

#01 – Trivia Crack
By Etermax
Category: Games
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#02 – Facebook Messenger
By Facebook, Inc.
Category: Social Networking
Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

#03 – Facebook
By Facebook, Inc.
Category: Social Networking
Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

#04 – Instagram
By Instagram, Inc.
Category: Photo & Video
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

#05 – YouTube
By Google, Inc.
Category: Photo & Video
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#06 – Snapchat
By Snapchat, Inc.
Category: Photo & Video
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#07 – NFL Mobile
By NFL Enterprises LLC
Category: Sports
Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.
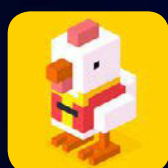This app is optimized for iPhone 5.

#08 – Pandora Radio
By Pandora Media, Inc.
Category: Music
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

#09 – Crossy Road - Endless Arcade Hopper
By HIPSTER WHALE
Category: Games
Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

#10 – NBC Sports Live Extra
By NBCUniversal Media, LLC
Category: Sports
Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#01 – OS X Yosemite
By Apple
Category: Utilities
Compatibility: OS X 10.6.8 or later

#02 – Kindle
By AMZN Mobile LLC
Category: Reference
Compatibility: OS X 10.6 or later

#03 – Xcode
By Apple
Category: Developer Tools
Compatibility: OS X 10.8.4 or later

#04 – TurboTax 2014
By Intuit Inc.
Category: Finance
Compatibility: OS X 10.8 or later, 64-bit processor

#05 – Microsoft Remote Desktop
By Microsoft Corporation
Category: Business
Compatibility: OS X 10.7 or later, 64-bit processor

#06 – App for Instagram - Instant at your desktop!
By Joacim Ståhl
Category: Social Networking
Compatibility: OS X 10.7 or later, 64-bit processor

#07 – Slack
By Slack Technologies, Inc.
Category: Business
Compatibility: OS X 10.6 or later, 64-bit processor

#08 – Memory Clean
By FIPLAB Ltd
Category: Utilities
Compatibility: OS X 10.7.4 or later, 64-bit processor

#09 – Microsoft OneNote
By Microsoft Corporation
Category: Productivity
Compatibility: OS X 10.9 or later

#10 – The Unarchiver
By Dag Agren
Category: Utilities
Compatibility: OS X 10.6.0 or later

Mac OS X

TOP Paid Apps

iOS

#01 – Trivia Crack (Ad Free)
By Etermax
Category: Games / Price: $2.99
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#02 – Minecraft – Pocket Edition
By Mojang
Category: Games / Price: $6.99
Requires iOS 5.1.1 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#03 – Heads Up!
By Warner Bros.
Category: Games / Price: $0.99
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#04 – Five Nights at Freddy's 2
By Scott Cawthon
Category: Games / Price: $2.99
Requires iOS 5.1 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#05 – Radiation Island
By Atypical Games
Category: Games / Price: $2.99
Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#06 – Five Nights at Freddy's
By Scott Cawthon
Category: Games / Price: $2.99
Requires iOS 5.1 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#07 – Afterlight
By Afterlight Collective, Inc
Category: Photo & Video / Price: $0.99
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#08 – Geometry Dash
By RobTop Games AB
Category: Games / Price: $1.99
Requires iOS 5.2 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#09 – Sons of Anarchy: The Prospect
By Orpheus Interactive Inc.
Category: Games / Price: $1.99
Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch.
This app is optimized for iPhone 5.

#10 – Facetune
By Lightricks Ltd.
Category: Photo & Video / Price: $3.99
Requires iOS 6.0 or later. Compatible with iPhone 4, iPhone 4S, iPhone 5, iPhone 5c,
iPhone 5s, iPhone 6, iPhone 6 Plus, iPad, and iPod touch.
This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

#01 – GarageBand
By Apple
Category: Music / Price: $4.99
Compatibility: OS X 10.9 or later

#02 – Disk Doctor
By FIPLAB Ltd
Category: Utilities / Price: $2.99
Compatibility: OS X 10.7.3 or later, 64-bit processor

#03 – OS X Server
By Apple
Category: Utilities / Price: $19.99
Compatibility: OS X 10.9.5 or later

#04 – AntiVirus Sentinel Pro
By Calin Popescu
Category: Utilities / Price: $9.99
Compatibility: OS X 10.7 or later, 64-bit processor

#05 – FaceTime
By Apple
Category: Social Networking / Price: $0.99
Compatibility: OS X 10.6.6 or later

#06 – Notability
By Ginger Labs
Category: Productivity / Price: $4.99
Compatibility: OS X 10.9 or later, 64-bit processor

#07 – Logic Pro X
By Apple
Category: Music / Price: $199.99
Compatibility: OS X 10.8.4 or later, 64-bit processor

#08 – Day One
By Bloom Built, LLC
Category: Lifestyle / Price: $9.99
Compatibility: OS X 10.7.4 or later, 64-bit processor

#09 – Duplicate Detective
By FIPLAB Ltd
Category: Utilities / Price: $1.99
Compatibility: OS X 10.7 or later, 64-bit processor

#10 – 1Password - Password Manager and Secure Wallet
By AgileBits Inc.
Category: Productivity / Price: $49.99
Compatibility: OS X 10.10 or later, 64-bit processor

TOP Paid Apps

Mac OS X

▶ Trailer

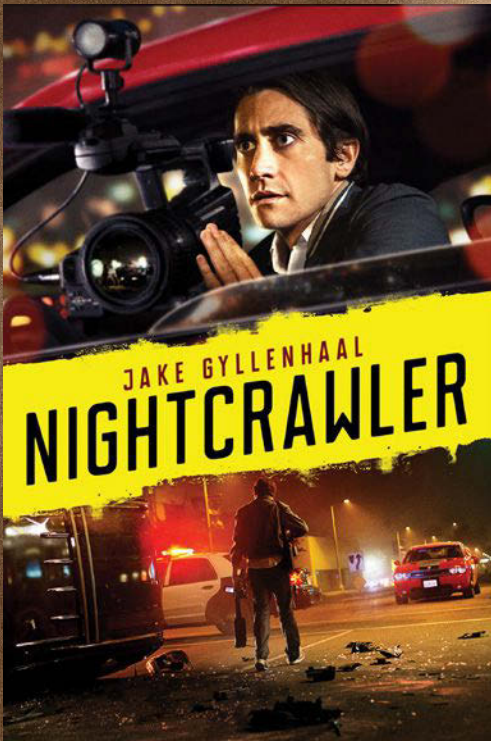# Movies
&TV Shows

Rotten **Tomatoes**
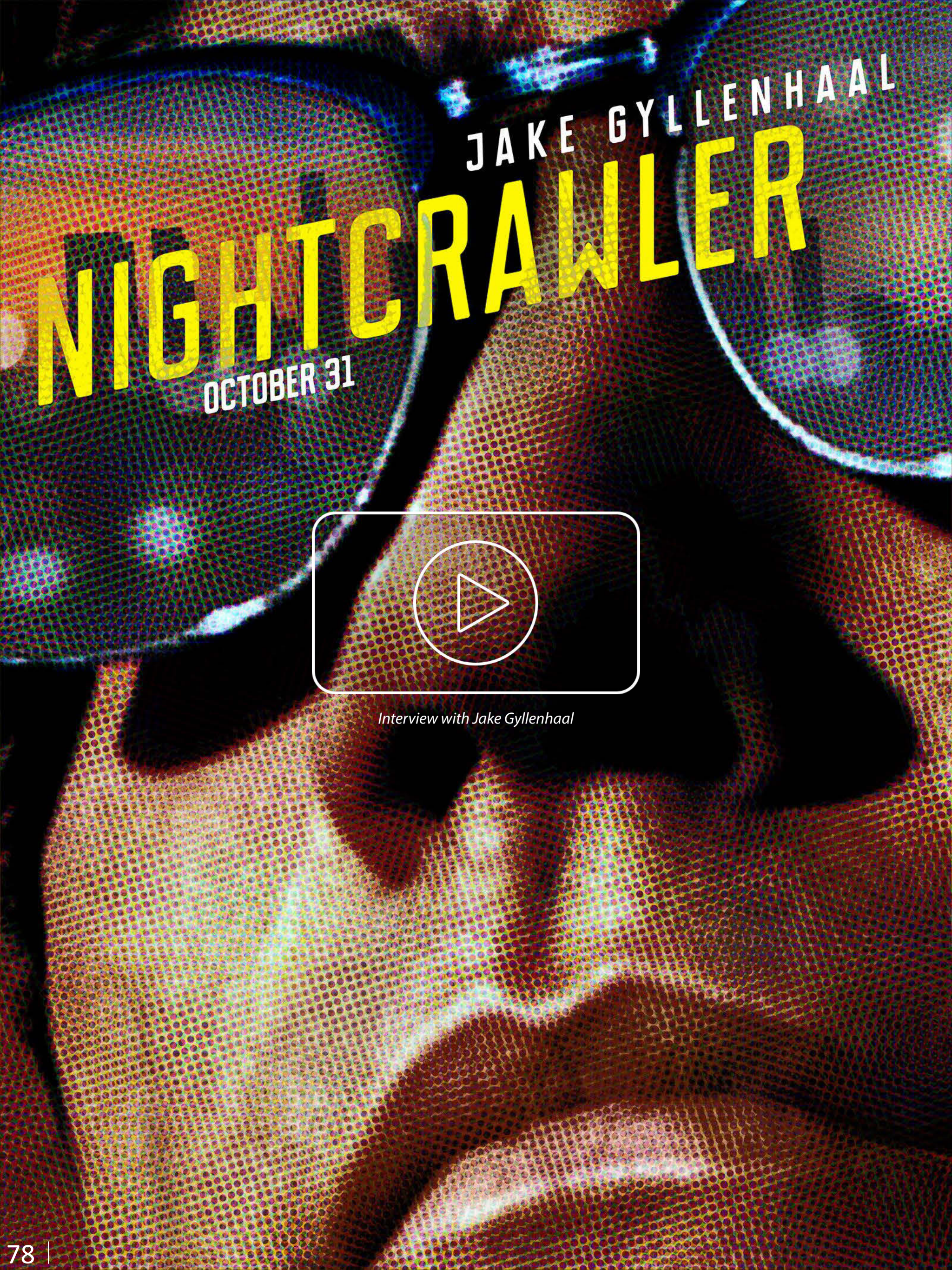**CERTIFIED FRESH** 95%

Nightcrawler

Set in the nocturnal underbelly of contemporary Los Angeles, this high-octane thriller centers on the driven, desperate-for-work young grifter Lou Bloom (Jake Gyllenhaal), who reinvents himself as a freelance news videographer, shooting footage of the city's accidents and crimes. But can he prevent himself blurring the line between observer and participant?

FIVE FACTS:

1. Nightcrawler is Dan Gilroy's directorial debut.

2. Rene Russo, Riz Ahmed and Bill Paxton also star.

3. The movie **had its world premiere at the Special Presentations section of the 2014 Toronto International Film Festival**.

4. It was nominated for the 2015 Academy Award for Best Original Screenplay.

5. Gyllenhaal **lost 20 pounds (9.1 kilograms) for the role**.

iTunes Preview

by Dan Gilroy
Genre: Thriller
Released: 2014
Price: $14.99

★★★★☆

205 Ratings

See more in
iTunes

JAKE GYLLENHAAL

NIGHTCRAWLER

OCTOBER 31

Interview with Jake Gyllenhaal
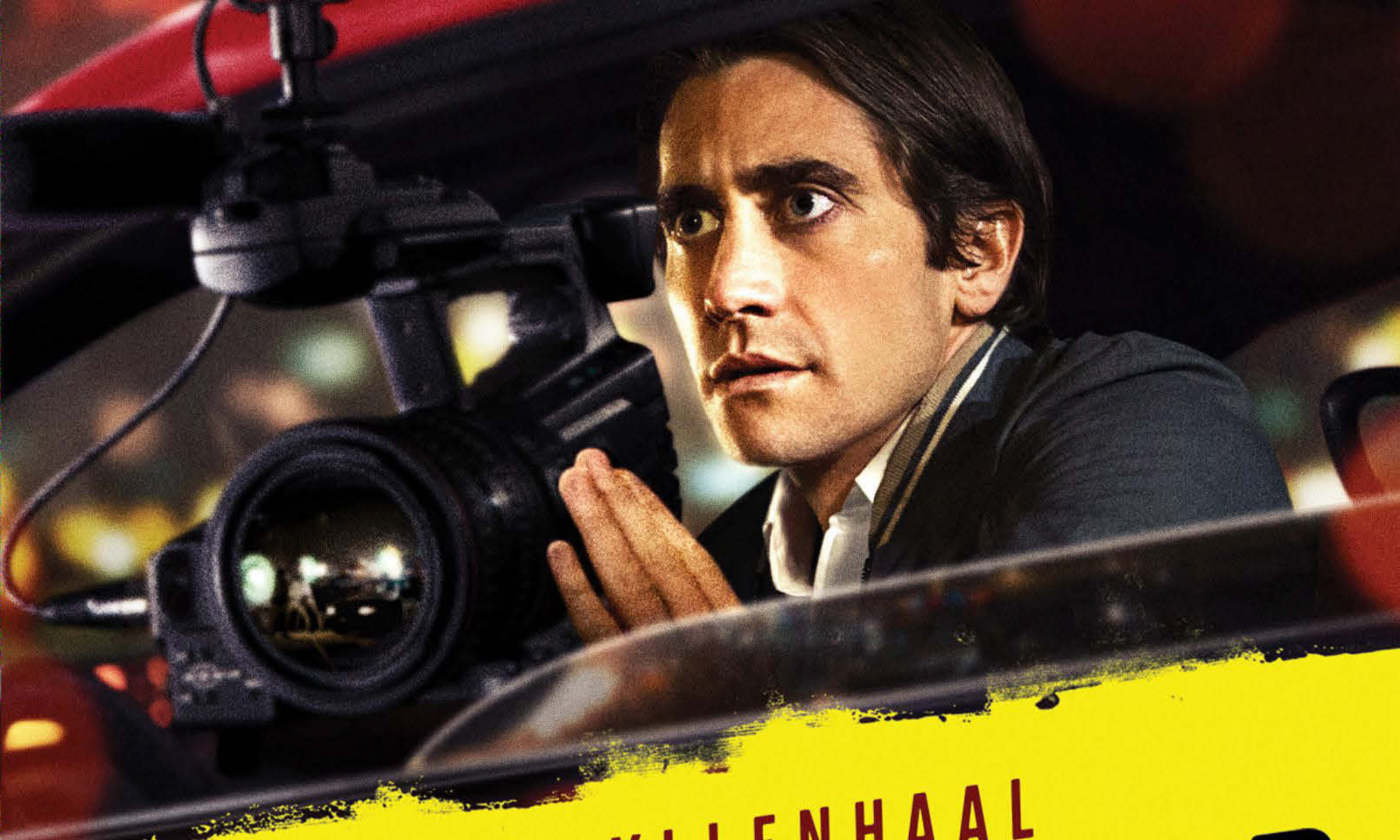
JAKE GYLLENHAAL

NIGHTCRAWLER

Horrible Bosses 2
(Extended Cut)

Nick, Dale and Kurt bid to end their days of answering higher-ups in favor of becoming their own bosses - only to end up hatching a misguided and desperate plan when the rug is pulled out from under them by a slick investor. This extended cut includes even more outrageous jokes not seen in theaters.

FIVE FACTS:

1. Horrible Bosses 2 was directed by Sean Anders.

2. It is the follow-up to 2011's Horrible Bosses.

3. Jason Bateman, Charlie Day, Jason Sudeikis, Jennifer Aniston, Jamie Foxx and Kevin Spacey all reprise their roles.

4. New additions to the cast include Chris Pine and Christoph Waltz.

5. Principal photography **took place in Burbank, California**.

iTunes **Preview**

by Sean Anders
Genre: Comedy
Released: 2014
Price: $19.99

We have not received enough ratings to display an average for this movie.

Rotten **Tomatoes**
CERTIFIED FRESH
35%

Trailer
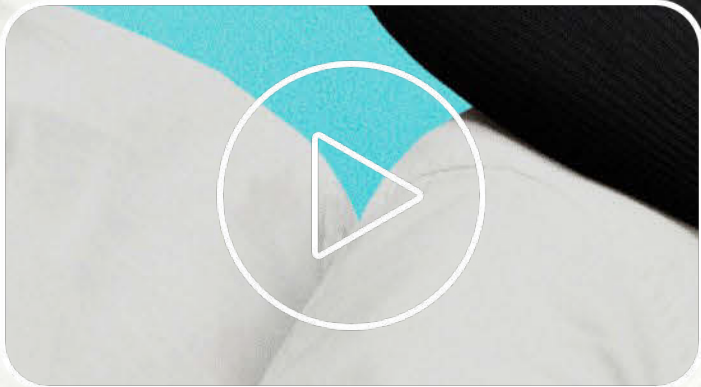
Interview with Jason Bateman, Jason Sudeikis and Charlie Day

iTunes
Review

▶
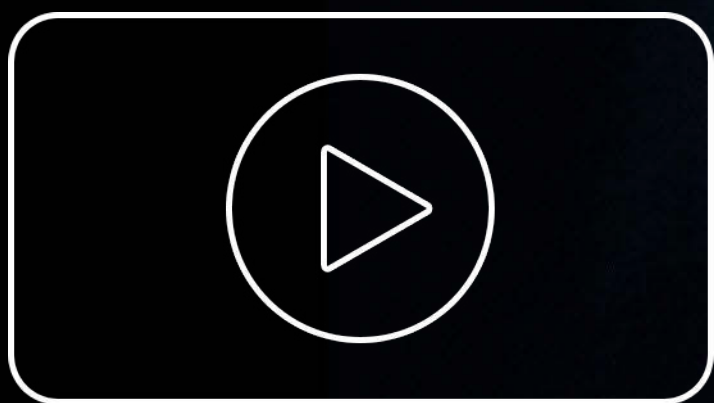
Earned It

Music

Fifty Shades of Grey
(Original Motion Picture Soundtrack)
Various Artists

iTunes **Preview**

Genre: Soundtrack
Released: Feb 10, 2015
16 Songs
Price: $11.99

★★★★☆

822 Ratings

If the movie isn't quite raunchy enough for you, why not also invest in the soundtrack? With The Weeknd's "Earned It" and the Ellie Goulding smash "Love Me Like You Do" having already been issued as singles, you may have become quite acquainted already with this musical accompaniment to the steamy romantic drama.

FIVE FACTS:

1. The 2015 film Fifty Shades of Grey is an adaptation of E. L. James' 2011 novel of the same name.

2. The movie stars Jamie Dornan and Dakota Johnson.

3. The book and movie portray the deepening relationship between college graduate Anastasia Steele and young business graduate Christian Grey.

4. The original novel caused controversy for its explicit eroticism including elements of bondage/discipline, dominance/submission and sadism/masochism (BDSM).

5. Other artists represented on the soundtrack include Annie Lennox, Beyoncé, Sia, The Rolling Stones and Frank Sinatra.

See more in
iTunes
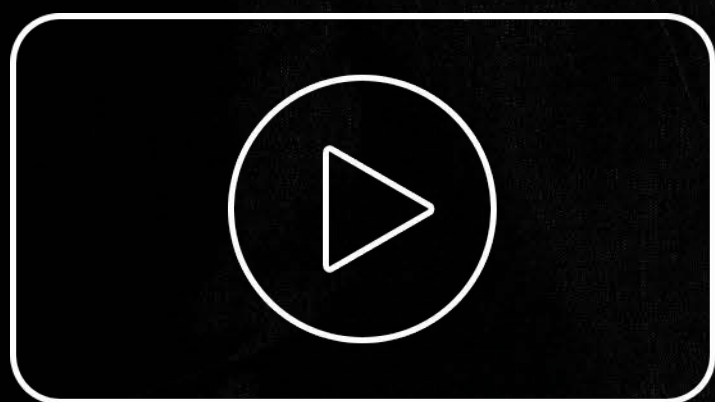
Love Me Like You Do

Holding All the Roses
Blackberry Smoke

Fans of the finest Southern rock of the 2010s cannot possibly overlook Georgia natives Blackberry Smoke, who came to prominence from Atlanta's country-rock underground when their third album, The Whippoorwill, was released on Zac Brown's Southern Ground record label. For Holding All the Roses, though, they're bringing their bluesy sound to Rounder Records.

FIVE FACTS:

1. The group's debut album was Bad Luck Ain't No Crime in 2003.

2. The Whippoorwill **sold more than 50,000 copies**.

3. The band has performed as both headliner and as a support act for artists such as Zac Brown Band, Eric Church, ZZ Top and Lynyrd Skynyrd.

4. The lineup consists of Charlie Starr (lead vocals, guitar), Richard Turner (bass, vocals), Brit Turner (drums), Paul Jackson (guitar, vocals) and Brandon Still (keyboards).

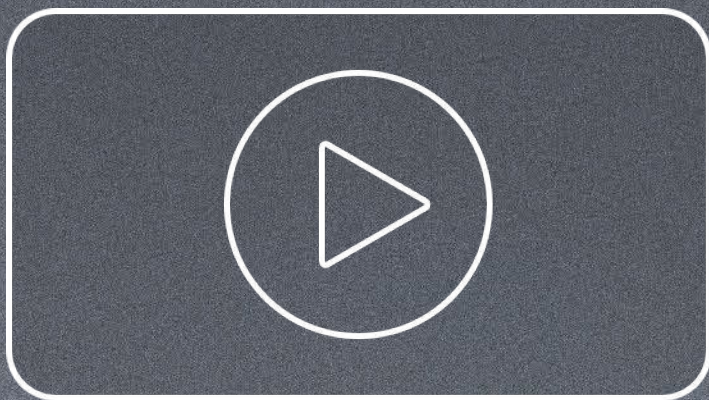**5.** They have also released a live album, Leave a Scar, Live: North Carolina, in 2014.

iTunes **Preview**

Genre: Rock
Released: Feb 10, 2015
12 Songs
Price: $9.99

★★★★★

60 Ratings
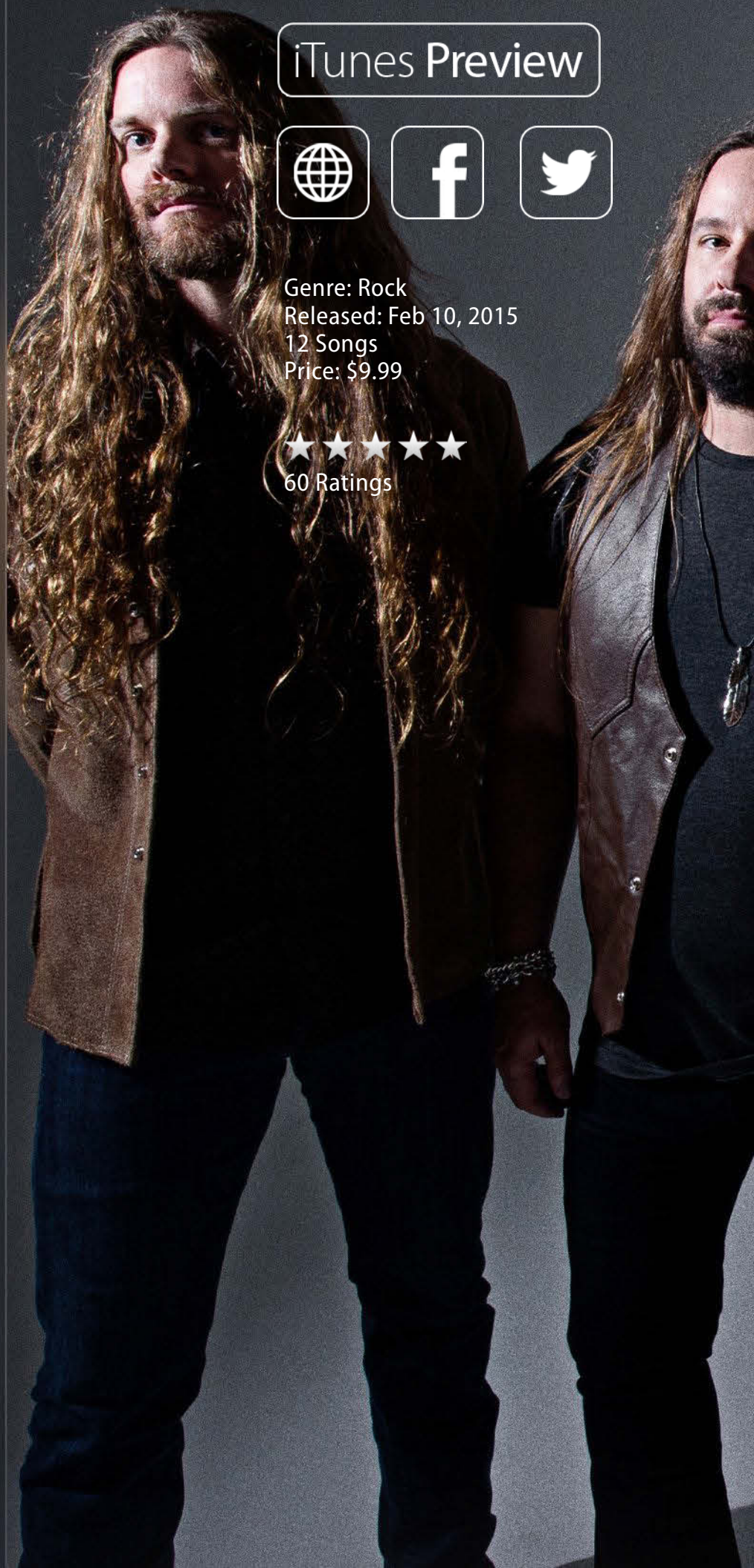
Living In The Song

Interview with Blackberry Smoke

YOUR **BRAND** HAS NEVER BEEN IN SUCH **COMPANY** GOOD

APPLEMAGAZINE.COM

It's all about Apple

The right magazine for the right audience

Image: David McNew

FRACKING PUTS
CALIFORNIA
GOVERNOR,
ENVIRONMENTALISTS
AT ODDS

In the 1970s, the environmental movement had no bigger political hero than California Gov. Jerry Brown. He cracked down on polluters, ended tax breaks for oil companies and promoted solar energy.

Forty years later, in his second go-around as governor, conservationists are among his harshest critics.

Climate change is one of Brown's key issues, and he said in his inaugural address last month that his goal is to have California get half its energy from renewable sources within 15 years.

But because he has refused to ban hydraulic fracturing for oil, protesters, or ``fracktivists,'' have dogged Brown for more than a year, even interrupting his speech at the Democratic Party convention last spring.

"Climate leaders don't frack," said Kassie Siegal of the Center for Biological Diversity, a group that praises Brown's programs to boost renewable energy. "The oil and gas boom threatens to undercut all the other progress that our state may make on climate."

Fracking opponents have planned their largest protest so far, a rally Saturday in Brown's hometown of Oakland that they hope will attract thousands. More than 100 environmental and community groups have signed on, and protesters are being bused in from around the state.

Some began their protest Friday outside Brown's San Francisco office. Police said 12 people were arrested when they briefly blocked public access to the building.

These days, Brown rarely engages with his critics. He barely campaigned for re-election last year and holds few public events.

The exception is appearances promoting the use of solar energy or other environmental initiatives. Still, Brown has noted that Californians love their freeways and gas-guzzling vehicles.

"As we speak, protesters and non-protesters are burning up gasoline that is being shipped from Iraq, from Russia, from Venezuela and all sorts of other places, and coming in on trains, so whatever we don't do here we are going to get from someone else until we get that moratorium on driving - which I haven't heard proposed yet," Brown said in response to a reporter's question Friday.

California is the No. 3 oil producer in the nation and has added an average of 300 wells each month for the past decade, about half of them using hydraulic fracturing, which involves forcing fluid, sand and chemicals underground to break rock formations and extract oil and gas. A fifth of the state's oil production comes through fracking.

Through a spokesman, Brown declined to comment on the protest, referring questions to the California Department of Conservation. In a prepared statement, chief deputy director Jason Marshall avoided using the term fracking, instead calling it "well stimulation."

"We have no direct evidence that any harm has been caused by the practice in California," he said. "We believe the regulations we've created,

Governor Brown: END FRACKING IN CA.
END ALL FOSSIL FUEL EXPANSION IN CA.
FIGHT CLIMATE CHANGE WITH SYSTEM CHANGE.

IDLE NO MORE

STATE
THE EA

35

Image: AP Photo/Jeff Chiu

BAN FRACKING

atop existing well construction standards, will protect the environment."

California regulators have also authorized oil companies to inject production fluids and waste into federally protected aquifers more than 2,500 times, risking contamination of underground water supplies, an Associated Press review found.

State officials are conducting a series of fracking reviews as California sets up its first comprehensive regulatory framework, after Brown signed a bill imposing new rules.

Oil producers say they will be the toughest regulations in the nation; environmentalists say they were watered down after legislators caved in to oil companies.

IN CALIFORNIA!

Brown is also seeking to ramp up targets set in the 2006 global warming law signed by Republican Gov. Arnold Schwarzenegger. Last year he persuaded lawmakers to devote revenue from fees charged to polluters to help fund the proposed $68 billion bullet train, which Brown touts as an environmentally friendly approach to transportation.

Environmentalists want Brown to follow the lead of New York Gov. Andrew Cuomo, a fellow Democrat who banned fracking last year. But reports by the California Council on Science and Technology contend the kind of fracking done in California is less risky, with little horizontal drilling to expose large areas underground to potential contamination.

"I don't agree with the notion that Jerry Brown is in the pocket of big oil. Some people think that, I don't," said Ross Bates, who headed a successful campaign last November to ban fracking in San Benito County. "When you try to take a middle road, people on either side have a problem with it."

Still, environmentalists were hoping for a more aggressive approach from Brown when he returned to office in 2010. Brown's ballot measure committee last year accepted more than $600,000 from oil companies and energy interests that also gave nearly $200,000 to his re-election campaign.

"In general we expected more of him because we as a state expect more, period," said Marta Stoepker, a spokeswoman for the Sierra Club in California, one of the groups taking part in Saturday's protest.

Online:

Fracking opponents' website: www.BigOilBrown.com

Image: David McNew

NETFLIX BRINGS ITS STREAMING VIDEO SERVICE TO CUBA

Netflix began selling its Internet video service in Cuba Monday in what appears to be a largely symbolic move driven by the recent loosening of U.S. restrictions on doing business with the communist-run island.

The expansion probably will generate more publicity for Netflix Inc. than new subscribers because only a small fraction of people living in or visiting Cuba have the high-speed Internet access needed to stream movies and TV shows.

NETFLI

The audience with fast enough Internet service to get Netflix consists primarily of international executives, foreign media workers and high-ranking government officials. Many more Cubans have access to relatively fast internet connections if they work for state businesses authorized to have the service, but their online activities are monitored. Streaming videos at work is among the activities that could trigger disciplinary action.

Most Cuban incomes are meager, too, making Netflix's $8-per-month service an unaffordable luxury for most of the island's 11 million residents. A ban on making U.S. payments also remains in effect, requiring anyone in Cuba who wants to subscribe to Netflix to set up an international payment method.

Credit card use by Cubans is virtually unknown, though both MasterCard and American Express recently announced plans to begin processing payments by their U.S. card holders while visiting the island.

Despite those obstacles, Netflix evidently wants to establish a toehold on Cuba now with the hope that Internet service will improve, household incomes will rise and diplomatic relations with the U.S. will continue to thaw. Moving into Cuba isn't likely to cost Netflix a significant amount, given that the Los Gatos, California, company already has been programming for Spanish-speaking audiences since expanding into dozens of Latin America countries in 2011.

Netflix now has more than 5 million subscribers in Latin America, accounting for nearly 10 percent of its 57 million customers worldwide. About 39 million of those subscribers are in the U.S, but Netflix is now experiencing its fastest growth internationally.

Things have been going so well internationally that Netflix CEO Reed Hastings plans to complete the company's expansion outside the U.S. by the end of next year. By then, Netflix expects to be

streaming in 200 countries, including China, if the company can get the necessary approvals.

Investors apparently don't view Cuba as a particularly promising market for Netflix. The company's stock dipped 85 cents to $443.51 in afternoon trading Monday.

Only about 27 percent of Cuba's population currently has access to the Internet, according to Internet Live Stats, which uses information from the International Telecommunication Union, the United Nations and the World Bank to estimate the world's Internet users. Another estimate by the group Freedom House puts Cuba's Internet availability at just 5 percent of the population.

Much of Cuba's Web surfing occurs in hotels or government internet centers with connections too slow to stream videos. That kind of access typically costs $4.50 per hour or about a quarter of the normal monthly wage. Most Cubans currently use the Internet time to email friends and relatives abroad.

Hundreds of thousands of Cubans entertain themselves by sampling a wide range of U.S., Spanish and Latin American films and television series copied onto DVDs and USB memory drives. The pirated content makes it possible to watch an entire season of a TV series for as little as $1.
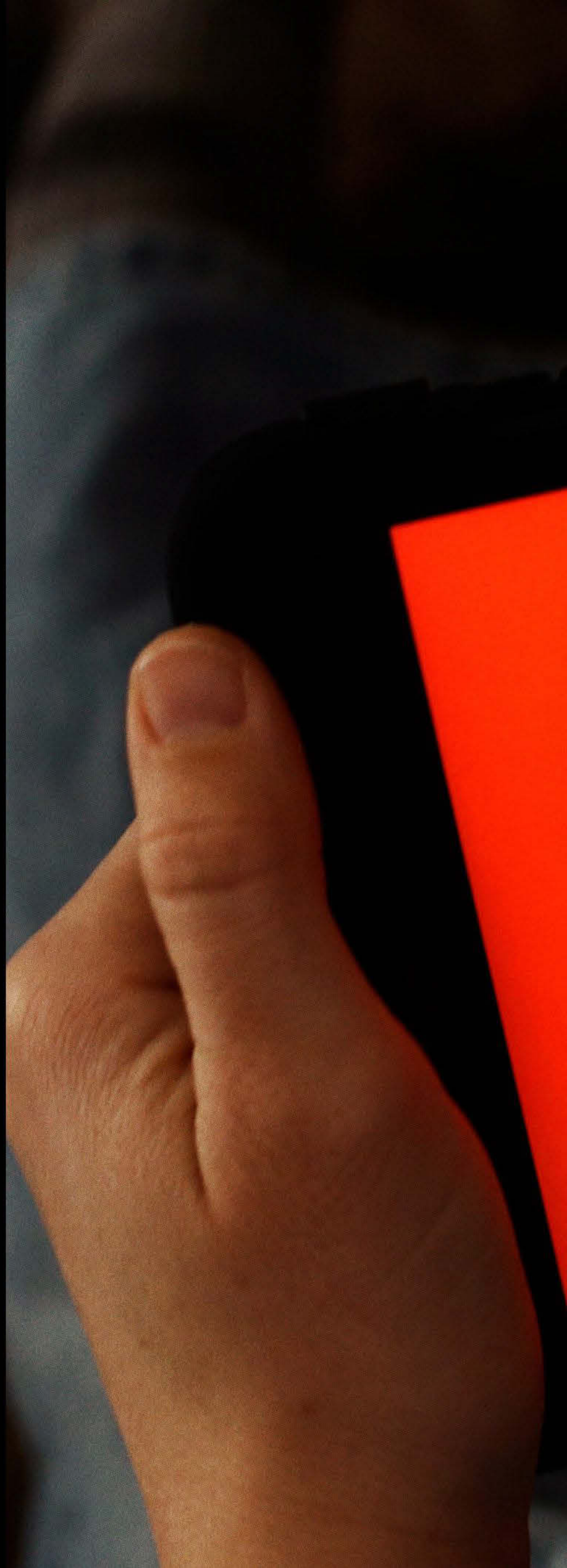
IS YOUR
DOCTOR'S
OFFICE THE
MOST
DANGEROUS
PLACE FOR
DATA?

Everyone worries about stolen credit cards or hacked bank accounts, but just visiting the doctor may put you at greater risk for identity fraud.

Those medical forms you give the receptionist and send to your health insurer provide fertile ground for criminals looking to steal your identity, since health care businesses can lag far behind banks and credit card companies in protecting sensitive information. The names, birthdates and - most importantly - Social Security numbers detailed on those forms can help hackers open fake credit lines, file false tax returns and create fake medical records.

"It's an entire profile of who you are," said Cynthia Larose, chair of the privacy and security practice at the law firm Mintz Levin in Boston. "It essentially allows someone to become you."

Social Security numbers were created to track the earnings history of workers in order to determine government benefits. Now, health care companies are, in some cases, required to collect the numbers by government agencies. They also use them because they are unique to every individual and more universal than other forms of identification like driver's licenses, said Dr. Ross Koppel, a University of Pennsylvania professor who researches health care information technology.

But once someone creates a stolen identity with a Social Security number, it can be hard to fix the damage. A person can call a bank to shut down a stolen credit card, but it's not as easy of a process when it comes to Social Security numbers.

"There is no such mechanism with Social Security numbers and our identity," said Avivah Litan, a cybersecurity analyst at the research firm Gartner. "You can't just call the bank and say, `Give me all the money they stole from my identity.' There's no one to call." So being that the data is so vital to protect, health care companies are taking every precaution to defend against hackers, right?

Not necessarily. The FBI warned health care companies a year ago that their industry was not doing enough to resist cyberattacks, especially compared with companies in the financial and retail sectors, according to Christopher Budd of security software company Trend Micro. The warning came in a government bulletin to U.S. companies that cited research by a nonprofit security institute, he said.

Last year, more than 10 million people in the U.S. were affected by health care data breaches - including hacking or accidents that exposed personal information, such as lost laptops - according to a government database that tracks incidents affecting at least 500 people. That was the worst year for health care hacking since 2011.

Litan estimates that the health care industry is generally about 10 years behind the financial services sector in terms of protecting consumer information. She figures that it may be twice as easy for hackers to get sensitive financial information out of a health care company compared with a bank. Banks, for instance, are more likely to encrypt personal data, which can garble the information if a hacker gets ahold of it. They also are much more likely to use advanced statistical models and behavior analytics programs that can spot when someone's credit card use suddenly spikes, says Litan, who studies fraud-detection technology. That's a sign of possible fraud that may be worth investigating.

"There's a need for that everywhere now," she said. Health care companies do have security to protect sensitive patient information. Anthem, the nation's second-largest health insurer, said last week that hackers broke into a database storing information on 80 million people, including Social Security numbers. The company had "multiple layers of security" in place before the attack, said David Damato, managing director at FireEye, the security company hired by Anthem to investigate the breach.

But the stolen data was not encrypted. An Anthem spokeswoman said encryption wouldn't have helped, because the intruder used high-level security credentials to get into the company's system.

Still, several experts say encryption does help.

Encryption programs can be tuned so that even authorized users can view only one person's account, or a portion of an account record, at a time, said Martin Walter, senior director at cybersecurity firm RedSeal Networks. That makes it harder for an outsider to view or copy a whole stockpile of records.

Even if Anthem's security had proved invulnerable, the health care system offers several other inviting targets with varying levels of security. Hospitals, labs, clinics and doctor's offices all can be attacked. Cybersecurity experts say they expect even more health care hacking problems in the future as those layers of the health care system shift their paper files to electronic medical records, a push that has been boosted by federal funding in recent years.

"A lot of businesses that didn't place a premium on security are now placing this incredibly valuable information online," noted Al Pascual, director of fraud and security at the consulting firm Javelin Strategy & Research.

The experience of a big company like Anthem does not bode well for the broader health care industry, said Budd at Trend Micro.

"They have resources to throw at cyber security," he said. "And if someone with nearly unlimited resources can be breached like this, then it raises serious questions as to what's at risk."

Beth Knutsen still worries about someone using her Social Security number more than a year after she was told that some old patient files of hers had been taken from a doctor's office in Chicago. The 39-year-old New York resident visited that doctor nearly 20 years ago.

She's seen no signs of fraud yet, and she still provides her Social Security number when a doctor's office asks for it - but only because it seems to be required for insurance and billing.

"It's so scary," she said. "Who knows what can happen with that information?"

TOP 10 SONGS

THINKING OUT LOUD
Ed Sheeran

FOURFIVESECONDS
Rihanna and Kanye West and Paul McCartney

UPTOWN FUNK (FEAT. BRUNO MARS)
Mark Ronson

TAKE ME TO CHURCH
Hozier

STAY WITH ME
Sam Smith

**LOVE ME LIKE YOU DO
(FROM "FIFTY SHADES OF GREY")**
Ellie Goulding

I'M NOT THE ONLY ONE
Sam Smith

STYLE
Taylor Swift

BLANK SPACE
Taylor Swift

LIPS ARE MOVIN
Meghan Trainor

TOP 10 ALBUMS

X (DELUXE EDITION)
Ed Sheeran

MORNING PHASE
Beck

IN THE LONELY HOUR (DELUXE VERSION)
Sam Smith

1989
Taylor Swift

**FIFTY SHADES OF GREY
(ORIGINAL MOTION PICTURE SOUNDTRACK)**
Various Artists

2015 GRAMMY NOMINEES
Various Artists

NOW THAT'S WHAT I CALL MUSIC, VOL. 53
Various Artists

HOZIER (BONUS TRACKS VERSION)
Hozier

1000 FORMS OF FEAR
Sia

AMERICAN BEAUTY / AMERICAN PSYCHO
Fall Out Boy

TOP 10

MUSIC VIDEOS

UPTOWN FUNK (FEAT. BRUNO MARS)
Mark Ronson

SHAKE IT OFF
Taylor Swift

BLANK SPACE
Taylor Swift

FOURFIVESECONDS
Rihanna and Kanye West and Paul McCartney

ALL ABOUT THAT BASS
Meghan Trainor

QUERIDA (FEAT. JUANES)
Juan Gabriel

CHANDELIER (DIRECTOR'S CUT)
Sia

LIPS ARE MOVIN
Meghan Trainor

STAY WITH ME
Sam Smith

ROAR
Katy Perry

TOP 10 TV SHOWS

WHERE'S THE BLACK LADY?
Scandal, Season 4

LUTHER BRAXTON (CONCLUSION)
The Blacklist, Season 2

THE BED'S TOO BIG WITHOUT YOU
Grey's Anatomy, Season 11

BEST CHRISTMAS EVER
How to Get Away With Murder, Season 1

BAGGAGE
The Americans, Season 3

RESPECT
Suits, Season 4

LUTHER BRAXTON (NO. 21)
The Blacklist, Season 2

THE TROLL MANIFESTATION
The Big Bang Theory, Season 8

RASH DECISIONS
Modern Family, Season 6

BAR-BE-Q BURRITOS
Hart of Dixie, Season 4

TOP 10 BOOKS

FIFTY SHADES OF GREY
E L James

THE GIRL ON THE TRAIN
Paula Hawkins

FIFTY SHADES DARKER
E L James

FIFTY SHADES TRILOGY BUNDLE
E L James

AMERICAN SNIPER (ENHANCED EDITION)
Chris Kyle and Others

TO KILL A MOCKINGBIRD
Harper Lee

PRIVATE VEGAS
James Patterson & Maxine Paetro

FIFTY SHADES FREED
E L James

GONE GIRL
Gillian Flynn

ALL THE LIGHT WE CANNOT SEE
Anthony Doerr

ROBOTS REPLACING HUMAN FACTORY WORKERS AT FASTER PACE

Cheaper, better robots will replace human workers in the world's factories at a faster pace over the next decade, pushing manufacturing labor costs down 16 percent, a report Tuesday said.

The Boston Consulting Group predicts that investment in industrial robots will grow 10 percent a year in the world's 25-biggest export nations through 2025, up from 2 percent to 3 percent a year now. The investment will pay off in lower costs and increased efficiency.

Robots will cut labor costs by 33 percent in South Korea, 25 percent in Japan, 24 percent in Canada and 22 percent in the United States and Taiwan. Only 10 percent of jobs that can be automated have already been taken by robots. By 2025, the machines will have more than 23 percent, Boston Consulting forecasts.

Robots are getting cheaper. The cost of owning and operating a robotic spot welder, for

instance, has tumbled from $182,000 in 2005 to $133,000 last year, and will drop to $103,000 by 2025, Boston Consulting says.

And the new machines can do more things. Old robots could only operate in predictable environments. The newer ones use improved sensors to react to the unexpected.

In a separate report, RBC Global Asset Management notes that robots can be reprogrammed far faster and more efficiently than humans can be retrained when products are updated or replaced - a crucial advantage at a time when smartphones and other products quickly fade into obsolescence.

"As labor costs rise around the world, it is becoming increasingly critical that manufacturers rapidly take steps to improve their output per worker to stay competitive," said Harold Sirkin, a senior partner at Boston Consulting and co-author of the report. "Companies are finding that advances in robotics and other manufacturing technologies offer some of the best opportunities to sharply improve productivity."

Boston Consulting studied 21 industries in 25 countries last year, interviewing experts and clients and consulting government and industry reports.

The rise of robots won't be limited to developed countries with their aging, high-cost workforces. Even low-wage China will use robots to slash labor costs by 18 percent, Boston consulting predicts.

Increasing automation is likely to change the way companies evaluate where to open and expand factories. Boston Consulting expects that manufacturers will "no longer simply chase cheap labor." Factories will employ fewer people, and those that remain are more likely to be highly skilled. That could lure more manufacturers back to the United States from lower-wage emerging market countries.

MASTHEAD

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